Calhoun: The NPS Institutional Archive

DSpace Repository

Theses and Dissertations 1. Thesis and Dissertation Collection, all items

1984

Analysis of selection process for management education : Korean military case.

Park, Durk Kwan

Monterey, California. Naval Postgraduate School

http://hdl.handle.net/10945/19144

Downloaded from NPS Archive: Calhoun

Calhoun is the Naval Postgraduate School's public access digital repository for research materials and institutional publications created by the NPS community. Calhoun is named for Professor of Mathematics Guy K. Calhoun, NPS's first appointed -- and published -- scholarly author.

Dudley Knox Library / Naval Postgraduate School
411 Dyer Road / 1 University Circle
Monterey, California USA 93943

http://www.nps.edu/library

DUDLEY KNOX LIBRARY
NAVAL POSTGRADUATE SCHOOL
MONTEREY, CALIFORNIA 93943

NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

ANALYSIS OF SELECTION PROCESS
FOR
MANAGEMENT EDUCATION: KOREAN MILITARY CASE

by

Durk Kwan, Park

June 1984

Thesis Advisor: T. G. Swenson

Approved for public release; distribution unlimited

T222997

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Analysis of Selection Process for Management Education: Korean Military Case		5. TYPE OF REPORT & PERIOD COVERED Master's Thesis June 1984
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Durk Kwan, Park		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Naval Postgraduate School Monterey, California 93943		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Naval Postgraduate School Monterey, California 93943		12. REPORT DATE June 1984
		13. NUMBER OF PAGES 88
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS (of this report) Unclassified
		15a. DECLASSIFICATION DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

predictor	validation analysis	criterion
validity coefficient	regression coefficient	
concurrent validation	predictive validation	

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The current selection system of Korean military officers for postgraduate education in management is described and analyzed. The method of validation analysis is used to analyze the current selection system.

(continued)

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE
S N 0102-LF-014-6601

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

Item 20. (continued)

Three factors to use for increasing the effectiveness of the current selection system are developed. The first factor concerns the priority of the predictors based on the validation analysis. The second concerns personal characteristics for consideration in the selection of officers for management education. The third concerns procedural considerations for increasing the overall effectiveness of the selection process.

Finally, on the bases of the three factors developed, a new selection model, applicable to selecting Korean military officers for postgraduate education in management, is proposed.

Approved for public release; distribution unlimited.

Analysis of Selection Process for Management Education: Korean Military Case

by

Durk Kwan, Park
Major, Republic of Korea Army
B.A., Korea Military Academy, 1974
B.A., Seoul National University, 1978

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
June 1984

ABSTRACT

The current selection system of Korean military officers for postgraduate education in management is described and analyzed. The method of validation analysis is used to analyze the current selection system.

Three factors to use for increasing the effectiveness of the current selection system are developed. The first factor concerns the priority of the predictors based on the validation analysis. The second concerns personal characteristics for consideration in the selection of officers for management education. The third concerns procedural considerations for increasing the overall effectiveness of the selection process.

Finally, on the bases of the three factors developed, a new selection model, applicable to selecting Korean military officers for postgraduate education in management, is proposed.

MONTEREY, CALIFORNIA

TABLE OF CONTENTS

I. INTRODUCTION 10

II. SELECTION MODEL 14
  A. TRADITIONAL MODEL 14
    1. Job Analysis 14
    2. Predictor 15
    3. Criterion 17
    4. Assessment of Validity 17
    5. Determination of The Selection Strategy 19
  B. TYPICAL DEVICES AND EVENTS OF SELECTION PROCESS 24
    1. Application Blank 24
    2. Interview 26
    3. Reference Checks 26

III. CURRENT SELECTION PROCESS 28
  A. DESCRIPTION OF THE CURRENT SYSTEM 28
    1. The Current Selection System 28
  B. ANALYSIS OF THE CURRENT SYSTEM 32
    1. The Validation Analysis of the Selection Predictors 32
    2. Statistical Significance of The Relationship between Them 36
    3. Decision of New Cutting Score and Grade 37
    4. Deciding Selection Strategy 47
  C. PROBLEMS OF THE CURRENT SELECTION SYSTEM AND THE SOLUTIONS 49

1. The Priority of The Predictors 49
2. There is no Desirable Cutting Standard . . 50
3. No Comprehensive Selection Strategy . . . 50
4. Low level and limited style of the ECI test 51
5. No Desirable Process of Identifying Personal Characteristics 51

IV. PERSONAL CHARACTERISTICS FOR IDENTIFYING MANAGEMENT POTENTIAL 53
A. PERSONAL CHARACTERISTICS OF EFFECTIVE MANAGER 53
B. EVALUATION METHOD OF IDENTIFYING PERSONAL CHARACTERISTICS 58
1. Interview 59
2. Appraisal of Past Performance 62

V. DESIGN OF REAL SELECTION MODEL 64
A. NEW FACTORS OF INCREASING THE EFFICIENCY OF SELECTION PROCEDURE 64
1. Educational Background 64
2. Past Performance Appraisal 65
3. Patterned Interview 65
4. Equal Selection Opportunity 66
5. Good Plans of Career Path 66
6. The Application of New Selection Strategy 68
B. NEW SELECTION MODEL 68
1. The Processes of Recruiting Highly Qualified Candidates 70
2. Data Selection for the First Selection . . 71
3. First Selection 74
4. Final Selection 75

VI. CONCLUSION 76

APPENDIX A: SPSS PROGRAM FOR REGRESSION ANALYSIS 79

APPENDIX B: APL PROGRAM FOR QUADRANT ANALYSIS 81

APPENDIX C: DATA FOR THIS STUDY 83

LIST OF REFERENCES 85

BIBLIOGRAPHY 87

INITIAL DISTRIBUTION LIST 88

LIST OF TABLES

I. Results of The Zero Order Regression Analysis (I) 34
II. Results of The Multiple Regression Analysis (II) 35
III. Results of The Quadrant Analysis(I) 41
IV. Results of The Quadrant Analysis(II) 42
V. Results of The Quadrant Analysis(III) 43
VI. Results of The Quadrant Analysis(IV) 44
VII. Results of The Quadrant Analysis(V) 45
VIII. New Selection Process 69

LIST OF FIGURES

2.1 The Traditional Model of The Selection Process 15
2.2 Selection Ratio 16
2.3 Concurrent Validation Design 17
2.4 Predictive Validation Design 18
2.5 Scatter Diagram Showing Selection Error 20
2.6 Selection Cost Trade Off 22
2.7 Relationship between Cutoff Score and Staffing Cost 23
2.8 Typical Device and Events of Selection Process 25
3.1 The Current Selection Process 29
3.2 The Quadrant Analysis 38
3.3 Scattergram between The University and NPS Grades 39
3.4 Scattergram between The ECL Scores and NPS Grades 40

I. INTRODUCTION

In the past decades, there has been a great emphasis on the art of directing the military personnel and of getting the most effective work from them, along with the purpose of (1) The fortification of self-defence power, (2) The modernization of the military equipment, and (3) The development of the defense-industry. Under these organizational requests, the military desires to increase the number of highly qualified officers who can manage the military personnel and modern weapons efficiently. As a result, the military has begun to educate some of its officers in the field of management.

The management education has two important objectives: The improvement of the officers' general qualities as managers and, the supplying of professional and specialized military staff.

There is one element in the profession of arms that transcends all others in importance. This is the human element . No matter what the weapons of the future may be, no matter how they are to be employed in war or international diplomacy, man will still be the most important factor in naval operations. The need for good leadership is, therefore, a constant factor [Ref. 1]. Moreover, the leader of human organization in a free society is charged with the responsibility of developing a complex and coordinated system of responses from many individual centers of reaction and initiative [Ref. 2]. As the military personnel requires a more rationalized system and anticipates more complex and diversified responses from the leaders, along with the higher educational level of the military enlisted personnel under the conscription system , there has been a great increase in the need for officers with education at the postgraduate level to prepare them for the extreme variety of roles beyond the traditional officer's combat skills.

The growing complexities of the officer's duties and intensive emphasis of highly rational and sophisticated military organizations causes the military officers to increase the professional knowledge through formal management education, along with the modernization of the military equipment and specialization of their duties. Under these demands, the military has increased formal and postgraduate level education to meet the requirements of these vital roles.

After the completion of management education, they have been and will be assigned to the special staff of the Head Quarters and will become the managers of the important military organizations. In the past decades, a number of Korean officers have been sent to the United States Naval Postgraduate School for the postgraduate level of management education. Especially, in the past five years,the number of Korean students in the Administrative Science Department of NPS has been greatly increased compared with the earlier years.[1] In this phase, a good selection system of Korean officers for the management education must be proposed to increase the successful completion of management education and potential benefits for the military organization through the selection of the highly qualified officers among the candidates. Managerial selection is the initial determination as to whether leadership and managerial ability is possessed; and the secondary, and perhaps more important, determination of the degree to which such ability is possessed. [Ref. 3]. However, the judgement and evaluation of the personal characteristics of potential managers is not supported with the current selection system. Furthermore, the NPS grade distribution study shows that the average grade of the Administrative Science students in the last five years is 3.55.[2] But, out of the Korean students who had graduated from the management curriculum at NPS, only 10.6%[3] of them had attained a grade higher than this average. Of course, there are many controversies concerning the subject of the relationship between academic performance and managerial ability and effectiveness. But, Harrell and Harrell [Ref. 4] reported a direct relationship between academic performance in postgraduate education in management and managerial success as measured by management compensation some years after the graduation. Furthermore, the Korean Military Manpower Planning Department regards high academic performance as a good indicator of an effective manager. Therefore, this study aims at evaluating the priorities of the predictors of the current selection system, increasing the efficiency of the method of identifying the personal characteristics of effective candidates for management education, and making new selection strategies to take the high academic performance from the overseas education by means of increasing the efficiency of the current selection system. Chapter I presents an introduction. Chapter II presents a general discussion of selection model for providing the analytical basis of the current selection system. Chapter III presents a description and analysis of the current selection system based on the general model.

---

[1] The following is the number of Korean students who have graduated and will graduate from management curriculum of NPS in the respective year: '79=1, '81=1, '82=4, '83=6, '84=9. This data comes from the Administrative Science Department.

---

[2] This source comes from " The NPS Grade Distribution Study."

[3] Out of 19 Korean students, only 2 students had attained a grade higher than the average grade of 3.55. This information comes from " Data for This Study" as reported in the appendix.

Chapter IV presents the personal characteristics to take into account for management education and the identification method. Chapter V is proposed as a real selection model based on the consideration of the conditional elements of Korean military organization and the analysis results of the current system. In the conclusion, several recommendations are presented.

II. SELECTION MODEL

General model of the personnel selection process will be presented and discussed for providing the analysis basis of the current selection model and the frame of the real selection model.

A. TRADITIONAL MODEL

The goal of the selection process is to capitalize on individual differences in order to select those persons who possess the greatest amount of particular characteristics judged important for job success [Ref. 5].

The traditional selection model underlying this approach is presented in figure 2.1.

1. Job Analysis

A job is a collection of tasks that can be performed by a single employee to contribute to the production of some product or service an organization provide. Each job has certain ability requirements as well as rewards associated with it. Job analysis is the process used to identify these requirements [Ref. 6]. Job analysis is an elaborate investigation and analysis of the job by means of observation, interviews, and detailed checklists [Ref. 7]. Job analysis is the cornerstone of the entire selection process. On the basis of this information, one or more sensitive, relevant, and reliable criteria are selected. At the same time, one or more predictors (e.g., measures of aptitude, ability, interest) are selected which presumably bear some relationship to the criteria or criteria to be predicted [Ref. 5].

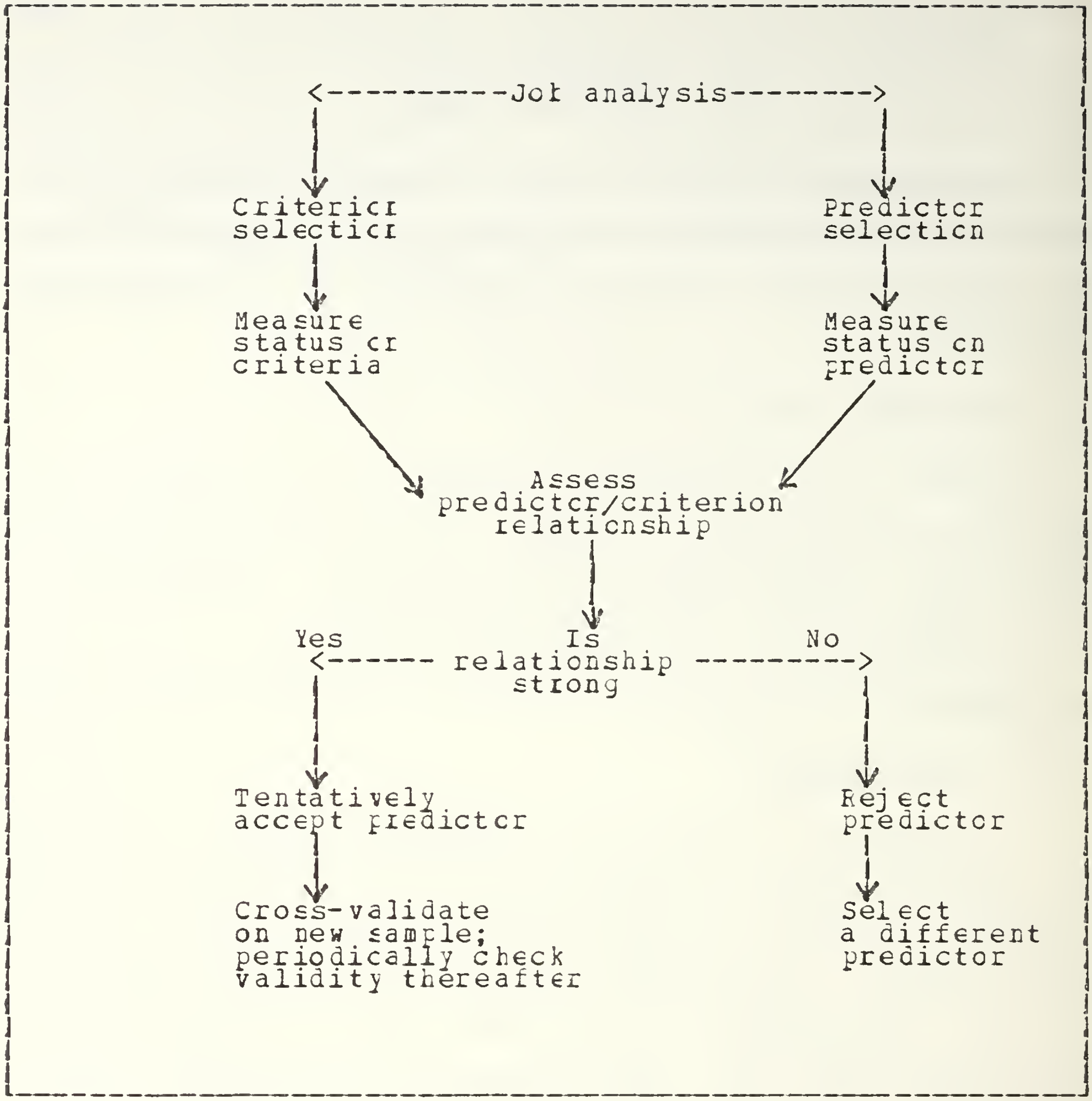
Job analysis
Criterion selection
Predictor selection
Measure status on criteria
Measure status on predictor
Assess predictor/criterion relationship
Yes
Is relationship strong
No
Tentatively accept predictor
Reject predictor
Cross-validate on new sample; periodically check validity thereafter
Select a different predictor

Figure 2.1 The Traditional Model of The Selection Process.

2. Predictor

Organizations use a wide variety of selection instruments and procedures to assist in making selection decisions, including tests, application blanks, interviews, and training and experience requirements. collectively, these are known as predictors [Ref. 6]. The actual decision to use a predictor must be based on an overall assessment of its likely usefulness. These factors are the size of the validity coefficient, the selection ratio, and the base rate [Ref. 5].

- *Validity coefficient*: The validity coefficient is defined as the correlation between predictor and criterion scores. The greater the validity coefficient, the more useful a predictor will be [Ref. 5].

- *Selection ratio*:

The selection ratio is defined as figure 2.2.

$$\text{Selection Ratio} = \frac{\text{Number of applicants hired}}{\text{Total number of applicants}}$$

Figure 2.2 Selection Ratio.

Assuming that the predictor is valid, the lower the selection ratio, the more useful the predictor will be in identifying successful applicants [Ref. 6].

- *Base rate*: In deciding whether or not to use a new predictor, the current base rate enters into the decision process. The base rate is defined as the percentage of current employees that are considered effective or successful, and thus ranges from 0.0 percent to 100 percent. With lower base rates, there is more room for improvement, and thus, a new predictor takes on greater potential usefulness [Ref. 6].

3. Criterion

Criterion is standard which can be used as yardstick for measuring employees' success or failure [Ref. 5]. This definition is quite adequate within the context of personnel selection, placement, and performance evaluation. It is useful when prediction is involved - that is, in the establishment of a functional relationship between one variable, the predictor, and another variable, the criterion [Ref. 5].

4. Assessment of Validity

Criterion-related validity means that a predictor is associated with a criterion. To perform the validation study, scores on both predictor and criterion measures must be obtained from job applicants or employees. there are two different approachs or designs for doing this - concurrent and predictive validation [Ref. 6].

a. Concurrent Validation

In concurrent validation, both predictor and criterion scores are obtained from employees concurrently on the job which the validation study is being conducted [Ref. 6]. this method is shown in figure 2.3.

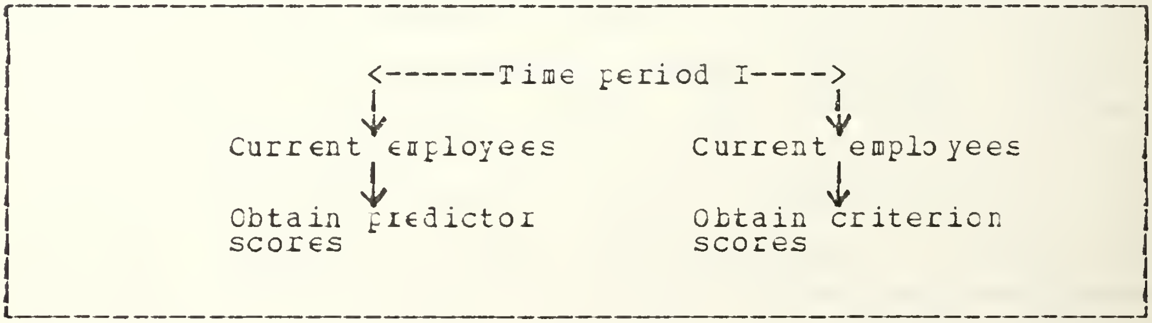

Figure 2.3 Concurrent Validation Design.

This design has been criticized on several points: (1) Test scores are obtained from individuals already employed in the job, therefore, the results may not apply to the applicants objectively. (2) It is possible that current employees change by developing particular skills necessary for success on the job. (3) Job incumbents may also respond differently while taking the tests than job applicants.

But, the concurrent design is more expedient and less costly than predictive validity, so it is the more commonly used procedure [Ref. 8].

b. Predictive Validity

Predictive validity refers to employees being tested prior to employment and hired in some basis other than the test scores. Then, at a later time, job performance measures are collected and correlated with the test scores [Ref. 8].

Figure 2.4 shows the essential feature of predictive validation.

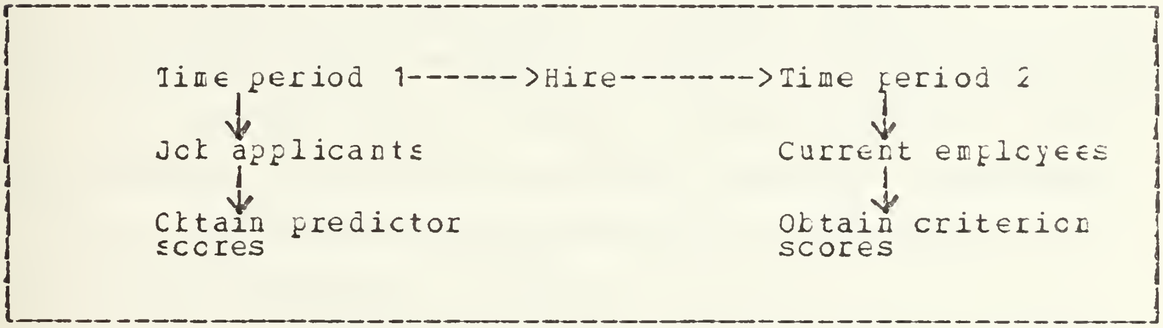

Figure 2.4 Predictive Validation Design.

This strategy has following problems: (1) Many organizations have neither the time nor the resources to conduct a longitudinal predictive study. (2) Organizations are sometimes required by law to make decisions on the basis of tests. In U.S V. City. Louis(1976) the court ruled that a predictive validity design was inappropriate due to the length of time required to conducted such a study in view of the legal duty of the organization to establish a valid selection procedure immediately [Ref. 8].

A variation of the predictive-validity design is to use the test in making the selection decisions(e.g., by establishing a cut off score), and to collect job-performance data. Then, measures of association between the test and job performance are computed [Ref. 8].

5. Determination of The Selection Strategy

In personnel selection the name of the game is prediction, for more accurate predictions result in greater cost savings(monetary as well as social) [Ref. 5].

a. The Concept of Selection Error

At what level the cut score is established has substantial implications for selection error. Illustration of this situation refers to figure 2.5 [Ref. 6].

- Quadrant I represents those individuals for whom success was predicted, and who were indeed successful.
- Quadrant II represents those individuals for whom success was not predicted, but who did not succeed in the job.
- Quadrant III represents those individuals for whom success was not predicted and who actually did not succeed in the job.

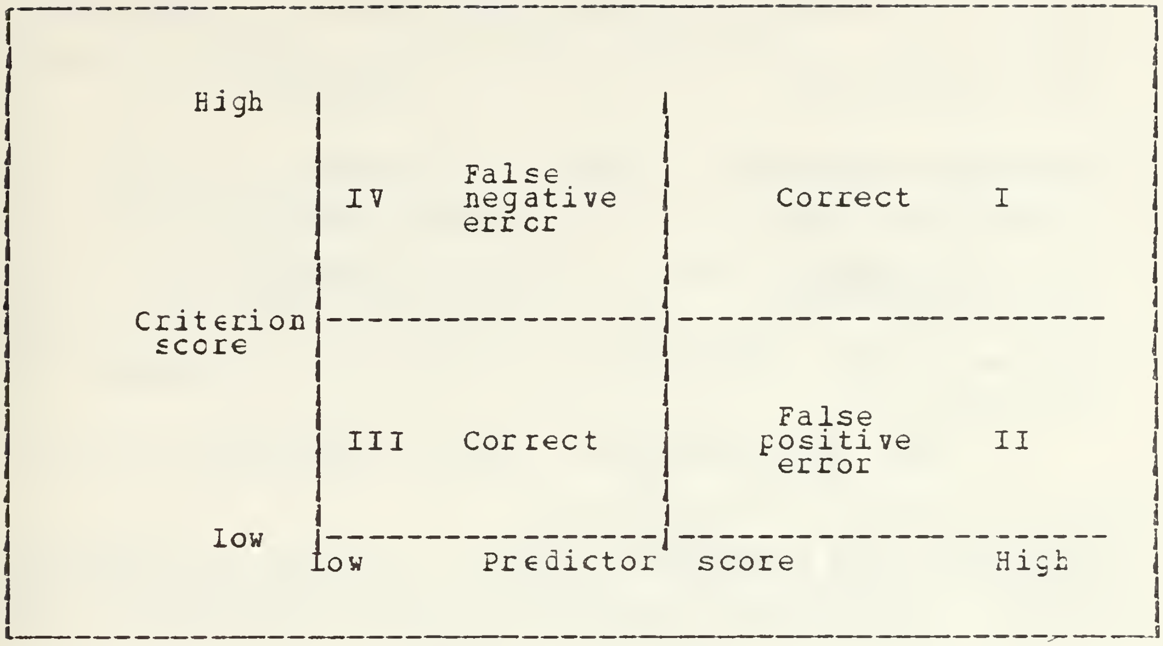

Figure 2.5 Scatter Diagram Showing Selection Error.

- Quadrant IV represents those individuals for whom success was not predicted, but who actually would succeed if hired.

Quadrant II and IV represent selection error [Ref. 8].

By the CAPER model, personal costs of selection identify two general types of costs - actual costs and potential costs. Actual costs include expenses actually incurred in attaining a specific quota of individuals. Potential costs include those expenses incurred as a result of erroneous selection decisions.

(1) Potential Costs. Potential costs might be incurred if a wrong selection is made:

- Erroneous acceptance costs: Expenses involved in accepting a subsequent failure into program - record-keeping costs, termination costs, costs of undesirable job behavior such as materials or equipment damaged;

loss of customers, clients, or patients; Loss of good will, etc., and costs incurred in replacing failing employee.

- Erroneous rejection costs: Expenses involved in rejecting a person who would have been successful if given the opportunity - competitive disadvantage if he is hired by another firm, and costs of recruiting and assessing an additional applicant to replace the rejectee.

(2) Actual Costs. Actual costs are actually incurred in hiring the applicants:

- Recruiting and assessment costs: Salaries of personnel staff, advertising expenses, travel expenses, and testing personnel evaluation costs.

- Induction and orientation costs: Administrative costs of adding the employee to the payroll, and salaries of the new employee and others responsible for orienting him to his new job.

- Experimental variable costs: Additional expenses involved in administering the new procedure.

- Training costs: Salaries of training and development staff, salary of the new employee during training, and costs of any special materials, or facilities for training [Ref. 5]. [Ref. 9].

Obviously, raising selection standard (i.e., decreasing the selection ratio) has mixed consequences. There is a cost trade-off involved when selection standards are changed. These cost changes may be summarized as figure 2.6.

There are inherent trade-offs between erroneous rejection and erroneous acceptance selection error. Thus, establishment of any particular hiring standard

Increase	Decrease
Recruiting cost	Induction cost
Selection cost	Training cost
Erroneous rejection cost	Erroneous acceptance cost

Figure 2.6 Selection Cost Trade Off.

needs to be based on the organization's relative willingness to commit erroneous acceptance, as opposed to erroneous rejection, selection error. One way to express this willingness, and then drive a hiring standard, is to couch it in terms of minimizing the total costs of selection [Ref. 5].

b. Hiring Standards and Cost Minimization

Actual costs involve those of recruitment, selection, and training. Potential costs are those that will be incurred if a selection error is made [Ref. 6]. The levels of these costs will vary according to the cut score or hiring standard that might be used on the predictor. As the cut score is raised, some of these costs will increase and others will decrease. Typically, as the cut score rises, so does the costs of recruitment, selection, and false negative error. On the other hand, costs of training and false positive error will decrease as the cut score rises. Hence, it will be necessary to establish a cut score that minimizes total costs - actual plus potential costs [Ref. 10]. Figure 2.7 shows a typical relationship between total staffing costs and predictor cut scores [Ref. 6].

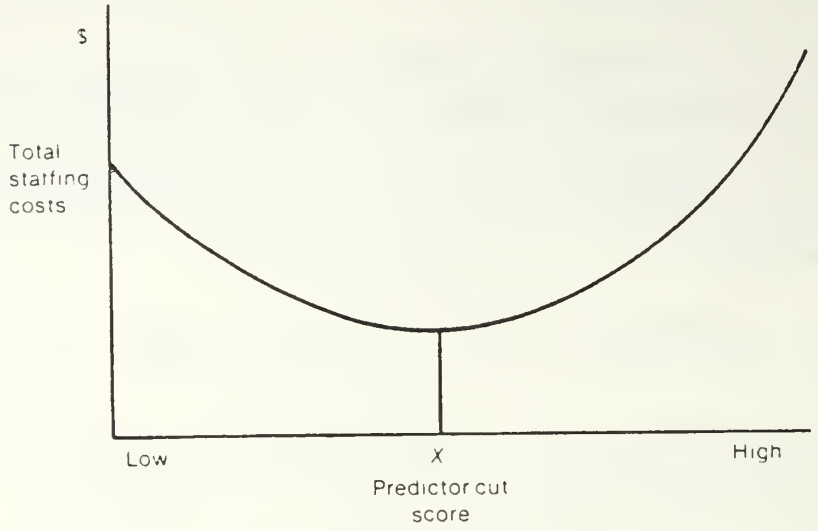

Figure 2.7 Relationship between Cutoff Score and Staffing Cost.

c. Assessment of Utility

Utility refers to the overall usefulness of a selection system. The concept includes the accuracy of the decisions made, but also concerns a consideration of the costs of using the selection system and the costs associated with the errors in the decisions made [Ref. 8].

The optimal strategy is the one that maximizes the expected utility for the institution across all possible outcomes [Ref. 11].

Statistical formulas have been developed to generate utility estimates.[4]

---

[4] F. L. Schmidt, J. E. Hunter, R. C. McKenzie, and T. W. Mulder, "Impact of Valid Selection Procedures on Work-Force Productivity," Journal of Applied Psychology, 1979, Volume 64, pp. 606-625.

The cost of attaining personnel requirement (CAPER) model is a decision -oriented, systemic selection model designed to evaluate the cost consequences of alternative recruiting -selection strategies [Ref. 5]. Therefore, one way to evaluate utilities in dollar terms is by means of CAPER,[5] a decision-oriented, systematic selection model which can provide careful planning information to help managers make better informed and wiser personnel decisions [Ref. 5]. But, combining utility approaches with cost minimization approaches has not yet formally been done. The potential pay offs from having such models are great. In the meantime, personnel/human resource managers should constantly bear in mind both cost and benefits in the administration of staffing systems [Ref. 6].

E. TYPICAL DEVICES AND EVENTS OF SELECTION PROCESS

The process of selecting employees is an important subprocess of the broader staffing process. Systems designed for the management of this subprocess almost universally include application blanks and interviews. In addition to these devices, psychological tests, reference checks, and physical examinations are often used [Ref. 7].

Among the devices in the selection process, The application blank, interview, and reference checks seem to have lots of implications for increasing the efficiency of the current selection system for overseas education.

1. Application Blank

The purpose of the application blank is to secure desired information from an applicant in a form convenient for evaluating the applicant's qualifications. It also

---

[5] W. A. Sands, "A Method for Evaluating Alternative Requirement-Selection Strategies: The CAPER Model," Journal of Applied Psychology, 1973, Volume 57, pp. 222-227.

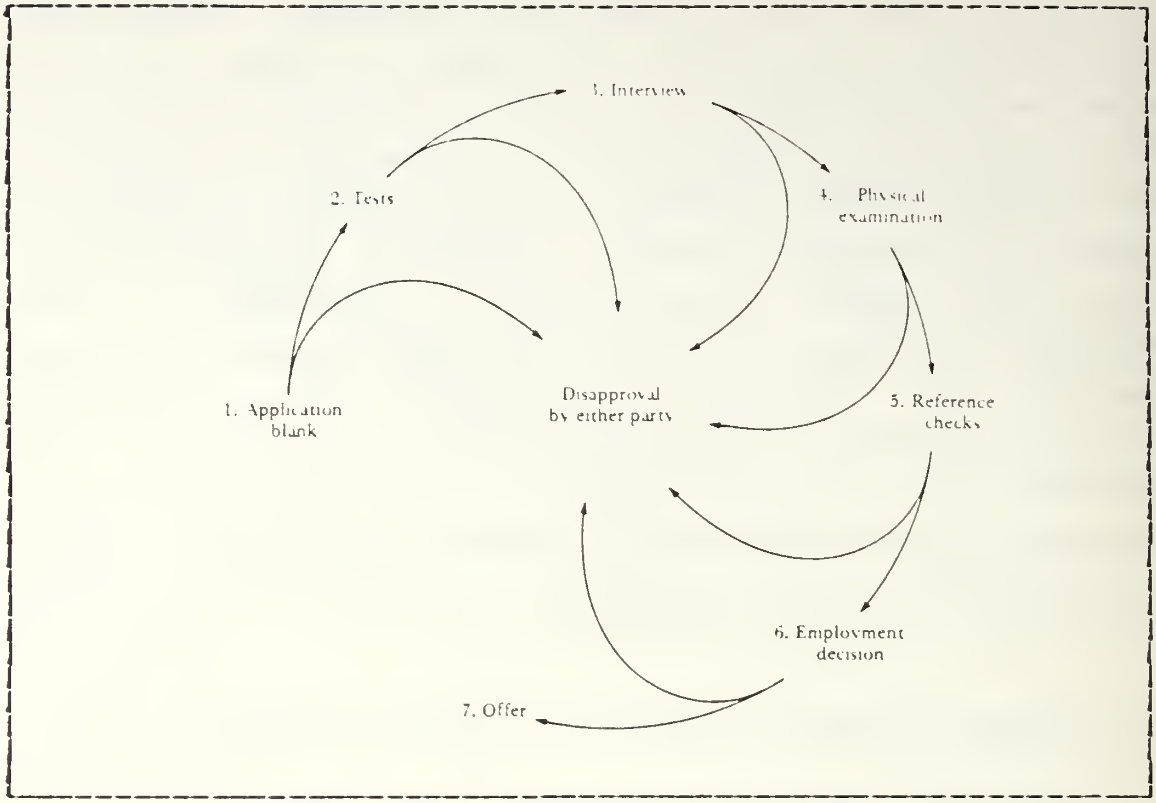

Figure 2.8 Typical Device and Events of Selection Process.

serves as a convenient device for circulating information about the applicant to appropriate members of management and as a useful device for storing information for later reference[6] [Ref. 7].

Some organizations may use a short form for preliminary screening or in the event of no immediate vacancies and a longer form when the applicant is being considered for a specific vacancy. The short form is easier to file and requires less time to complete but still provides enough information for preliminary screening [Ref. 7]. When the

---

[6] Resumes (background summaries) contain similar information, but the format is the applicant's design, rather than the organization's. Resumes are used by job - seekers in initiating contact with employers and are often requested by companies in their recruiting advertisements. p. 266, footnote [Ref. 7].

Education Department try to check the general qualification of the applicants of management education, the application blank can be used for preliminary screening device and for gathering general background data in predicting the successful academic performance of overseas education.

2. Interview

As in the case of the application blank, the assumption undering the interview is that data can be obtained which will be useful in predicting success on the job. While obtaining such data is its main objectives, most interviews have multiple purpose. The interview extends the process of developing sources of applicants. Other purposes of the interview might be screening for further referal, advising applicants about alternatives in employment, and furthering public relations. Objectives of group interview might be to assess personalities and to see who emerges as the leader [Ref. 7]. Purpose distinguishes an interview from a casual conversation. Interviewing objectives are many and varied. The purpose of the interview may be: to explore another's mind or sentiments; to obtain information in regard to specific situations or attitudes; to establish eligibility; to impart health information; to ascertain health habits; to evaluate resources;to motivate to action; to give advice; to seek advice; and so on indefinitely. There may be a general purpose for the entire interview with more specific minor objectives which may be modified during the course of the interview [Ref. 12].

3. Reference Checks

The checking of reference is one of the procedures used in the employment system of most firms. It consists of verifying information given by an applicants or of obtaining additional information by communicating with previous employers or other references, or of both methods. Checks on references are made by mail or by telephone and occasionally in person.

The opinions of previous employers and others who know the applicant are generally useful in rounding out the picture of potential performance on a particular job. Here again, the assumption is made that data obtained in reference-checking are useful in predicting successful performance. There is considerable "face validity" in this assumption, since previous performance is usually a fair predictor of future performance [Ref. 7].

The device of checking reference is useful in assembling the personal data of the applicants.

Overall, the application blank, interview, and reference-checking can be used to contribute to the overall effectiveness of the selection process.

III. CURRENT SELECTION PROCESS

A. DESCRIPTION OF THE CURRENT SYSTEM

1. The Current Selection System

a. Required Qualifications

The basic qualifications of officers for post-graduate level management education is essentially based on the following factors:

(1) Rank: Captain or above.

(2) Career: Company level of commander.

(3) Service record: nonjudicial punishment during the military service.

(4) Past performance: Rating of middle or above.

(5) Total grade at university: Average or above.

b. The current selection process

Figure 3.1 shows the current selection process.[7]

(1) All Units. Each unit decides the present and future needs of management personnel based on (a) Advancement, (b) Transfer, (c) Resignation, (d) Retirements, or (d) New positions.

---

[7] This information comes from the Education Department of the Korean military Head Quarters: The Selection Process for Overseas Education in 1984.

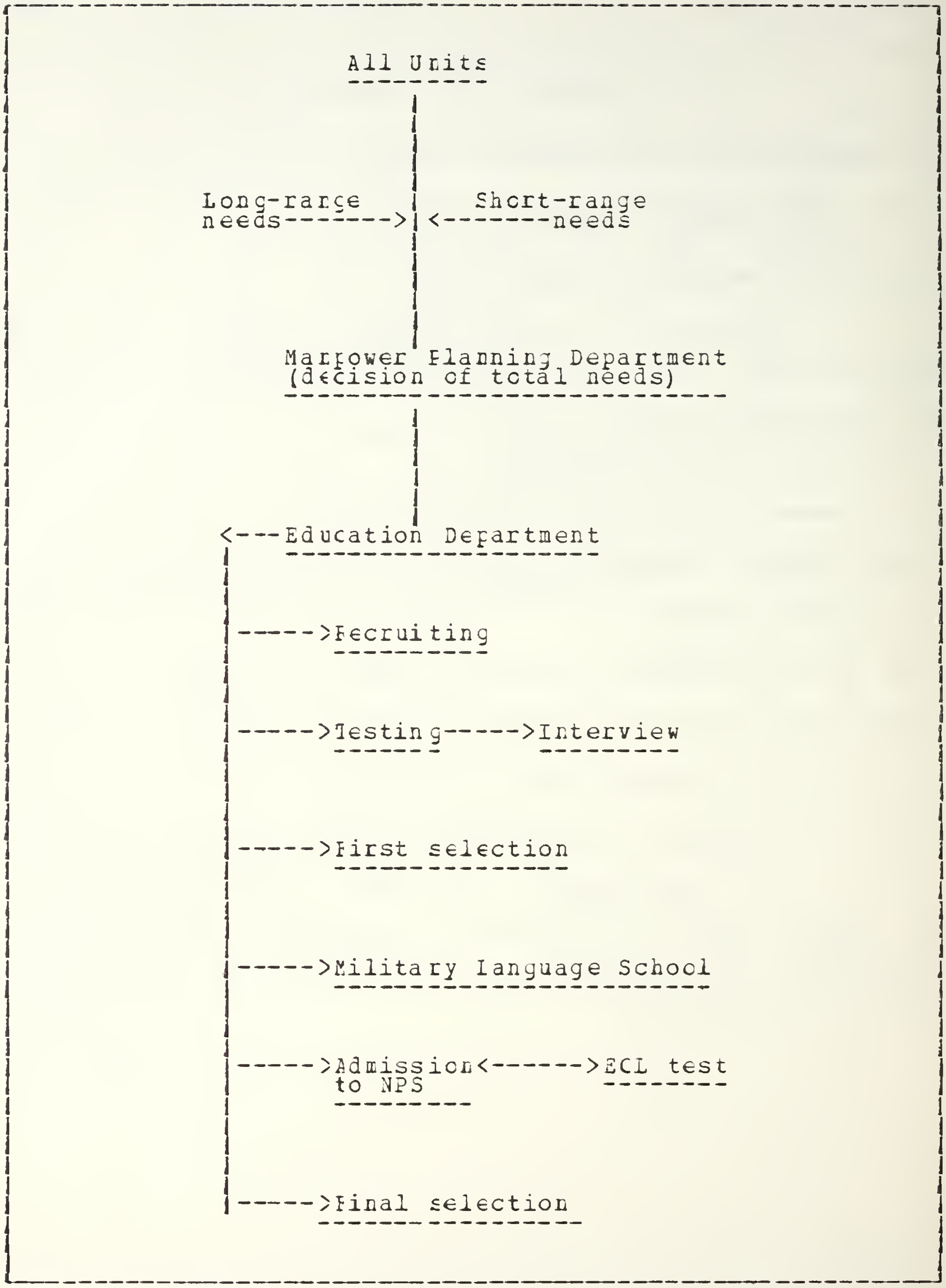

Figure 3.1 The Current Selection Process.

(2) Manpower Planning Department. Manpower Planning Department figures out the present and future total needs of the personnel and determines the required number for overseas education.

(3) Education Department. The Education Department recruits and selects the number of personnel based on the determination of the Manpower Planning Department.

- Recruitment: The Education Department advertises the detailed contents to the qualified officers throughout all the units. If the qualified officers want to take the opportunity of the formal education, they must hand in the required form at the Education Department. After deciding the qualification about the testing, the results of the decision are delivered to all the candidates.

- Initial ECL test: All the candidates should take the ECL[8] test. The Education Department regards the ECL score as the most important factor of the education selection.

- Interview: After the initial ECL test, the Education Department consists of the committee to interview the candidates. Primarily, the contents of the interview consist of (a) Verbal ability, (b) Mental attitudes, (c) Motives of education, (d) Physical attitudes, and (e) Goals of military life. By the interview, the committee tries to analyze the mental attitudes about the education and military service. Therefore, the interview is not a specific and differentiating tool for management education but a general tool for overall quality.

---

[8] ECL: English Comprehension Level test. Initial ECL test is given to the applicant by the Education Department of the Korean military. Formal ECL test is given to the applicant by the Education Department of U. S. 8th Corps in Korea.

(4) First Selection. The Education Department decides the adequate officers for the formal education among the candidates. The priority of the selection decision is as follows:

(a) Score of the initial ECL test.

(b) Result of interview.

(c) University grade.

(d) Past performance and career.

(5) Training at the Military Language School. After the decision of the first selection, all the selectee should receive the English training course for six months. But, if the selectee is unable to take the English language course due to the completion of his career, they are exempted from the English training course. In this case, they are responsible for increasing their English ability and preparing for the formal ECL test on their own.

(6) Final Selection. The Education Department applies all the candidates to the NPS and the candidates should receive admission from NPS. Simultaneously, all the candidates should take formal ECL test at the Education Department of the U.S. 8th Corps in Korea. At the ECL test, they should attain 80 points or more.[9] If the first selectees do not receive admission from NPS and attain the minimum scores of the ECL test, they are skipped at the final selection. Among the first selectees, the Education Department decides the final selectees based on the following data:

(a) Admission from NPS.

(b) Score of the formal ECL test.

---

[9] A minimum ECL score of 80 must be verified before Invitational Travel Orders are issued. This is the requirement for management education at NPS. THis information comes from " Postgraduate Education for Korean Officers."

(c) Result of interview.

(d) University grade.

(e) Past performance and career.

B. ANALYSIS OF THE CURRENT SYSTEM

The purpose of this analysis is aimed to indicate whether or not the current procedure of selection is compatible with the present and future needs of the organization in terms of management manpower.

This analysis consists of two discussions. One discussion deals with the extent of efficiency of the current system. The other discussion aims to find out the problems of the current system.

1. The Validation Analysis of the Selection Predictors

organizations use a wide variety of selection instruments and procedure to assist in making selection decisions including tests, application blanks, interview, and training and experience requirement. Collectively, these are known as predictors. Underlying the use of predictors is a definite strategy for influencing personnel/human resources outcomes. That strategy is to attempt identification and selection of those applicants most likely to be effective employees. This predictors are used to assess applicant's ability and motivation relative to the requirement and rewards of the job. Implementation of this strategy requires that the organization first investigate the validity of predictors. This is accomplished through the conduct of validation studies [Ref. 6].

Validation refers to the procedures used for gathering validity evidence about a predictor: the outcome of a validation study indicates the degree to which the predictor is related to a personnel/human resource outcome. Such information may be used to decide whether to use the predictor for selecting future job applicants [Ref. 6].

There are two different approaches for performing the validation study- concurrent and predictive validation. The predictive validation method will be used to analyze the priority of predictors of the current system.

Predictors are the university grades and ECL scores. Criteria are the NPS first quarter grade, the NPS total grade, and the NPS graduate course grade.

A personnel manager may wish to predict a prospective employee's job performance on the basis of his or her scores on an employment test. A method of analysis that permits these predictions is called regression analysis [Ref. 8].

By the regression analysis, a correlation coefficient is computed. Correlation coefficient is a statistical indicator of the relationship between predictor and criterion score. In validation study, it is also called the validity coefficient. The symbol for the correlation coefficient is r. Numerically, r values can range from r=-1.0 to r=+1.0. The larger the value of r, the stronger the relationship between predictor and criterion [Ref. 6].

Table I and II show the results of the regression analysis.[10]

---

[10] Korean students have received very low grades due to the absolute appraisal system of university grades in Korea: 100-90(A),89-80(B), 79-70(C), 69-60(D), the minimum average of 67 scores is required for university graduation. this system is different from the relative appraisal system of civilian universities in Korea.

TABLE I

Results of The Zero Order Regression Analysis (I)

(1) Correlation Coefficient		Number of Cases	Level of Significance
Predictors	Criteria		
	NPS first quarter grade	25	
University grade:	0.7256	21	0.005
- mathematics grade:	0.4873	21	0.01
- English grade:	0.2680	21	N.S.
- economics grade:	0.1117	21	N.S.
- statistics grade:	0.0780	21	N.S.
High school			
- English grade:	-0.0727	21	N.S.
- mathematics grade:	-0.2313	21	N.S.
ECL point:	0.6098	21	0.005
NPS total grade:	0.8350	19	0.005
	NPS total average	15	
University grade:	0.7745		0.005
- mathematics grade:	0.5932		0.01
- economics grade:	0.0046		N.S.
- statistics grade:	0.0221		N.S.
- English grade:	0.2488		N.S.
ECl point:	0.3828		N.S.
	NPS graduate course average	15	
University grade:	0.7612		0.005
- mathematics grade:	0.5801		0.01
- economics grade:	0.0430		N.S.
- statistics grade:	0.0748		N.S.
- English grade:	0.3067		N.S.
ECL point:	0.2884		
	ECL		
University	0.3752	21	0.05

TABLE II

Results of The Multiple Regression Analysis (II)

(1) Variables in the equation by stepwise regression

Independent Variable	Dependent Variable	Number of Cases	SIG T
	NPS first quarter grade		
	Regression coefficients		
University grade:	0.679	21	0.0011
ECI score:	0.019	21	0.0164
(constant):	-0.203		

(2) Variables not in the equation by stepwise regression

Variable	SIG T
University mathematics	0.4968
- English	0.0609
- economics	0.9117
- statistics	0.5111

(3) Means		Number of Cases
University grade:	2.8600	21
ECI score:	87.8400	25
NPS		
- first quarter grade:	3.3380	25
- total average grade:	3.3342	19
- graduate course grade:	3.3284	19

2. Statistical Significance of The Relationship between Them

It is important that a criterion be practical in terms of time, effort, and expense required to collect criterion data. If one were going to evaluate the effectiveness of a college admission selection procedure, first semester grade average would be a very practical criterion.[11]

If it is concluded that the correlation reflects a true relationship, the predictor can be used for selecting future job applicants [Ref. 6].

The range of the statistical significance of the relationship between the predictor and the criterion is different as the number of cases change.

(1) The university grade has a strong relationship with the NPS first quarter grade (r=0.7256) and the ECL score also has a strong relationship with the NPS first grade (r=0.6098).

(2) The university grade has a strong relationship with the NPS total grade(r=0.7745) and the ECL score has a moderate relationship (r=0.3828). The university grade has a stronger relationship with the NPS total grade than the ECL score. Therefore, the priority of predictor significance is as follows: First, the university grade. Second,the ECL score.

(3) The university grade has a significant relationship statistically with the NPS graduate course grade: strong relationship (r=0.7612). But, the ECL score has a low relationship statistically with the NPS graduate course grade (r=0.2884).

---

[11] Frank S. McKENNA, *A Self Instructional Program*, Educational Method, Inc/Chicago, p. 11.

(4) This study indicates that the mathematics grade in the university subjects has a relatively high value in predicting the scholastic success of the NPS education (mathematics: r=0.4873, English: r=0.2680, statistics: r=0.0780, economics: r=0.1117)

Therefore, mathematical background is very important for increasing the grade of management education as well as learning the quantitative problem-solving methods. This is not surprising, given that the mathematics courses of the Administrative Science Curriculum are business-oriented and designed to give students the fundamental mathematics background necessary for study in economics, statistics, and operations research [Ref. 13].

(5) High school mathematics and English grades are not significant in predicting the scholastic success. The reasons are as follows: First, the validity is very low (English: r=-0.0727, mathematics: r=-0.2313). Second, the high school level of Korea was unequitable between rural and urban areas. Therefore, the grades of the high school subjects do not have a high value in predicting the academic performance.

3. Decision of New Cutting Score and Grade

The results of the validation analysis can be used in the identifications of cutting score and grade that would result in higher NPS grades. Figure 3.2 shows quadrant analysis which is used to help determine the new cutting ECL score and university grade. The quadrant analysis is based on the scattergram between the university and NPS first quarter grade, and the scattergram between the ECL test score and NPS first quarter grade. Figures 3.3 and 3.4 show the scattergram between university grades and NPS first quarter grades and the scattergram between ECL scores and NPS first quarter grades.

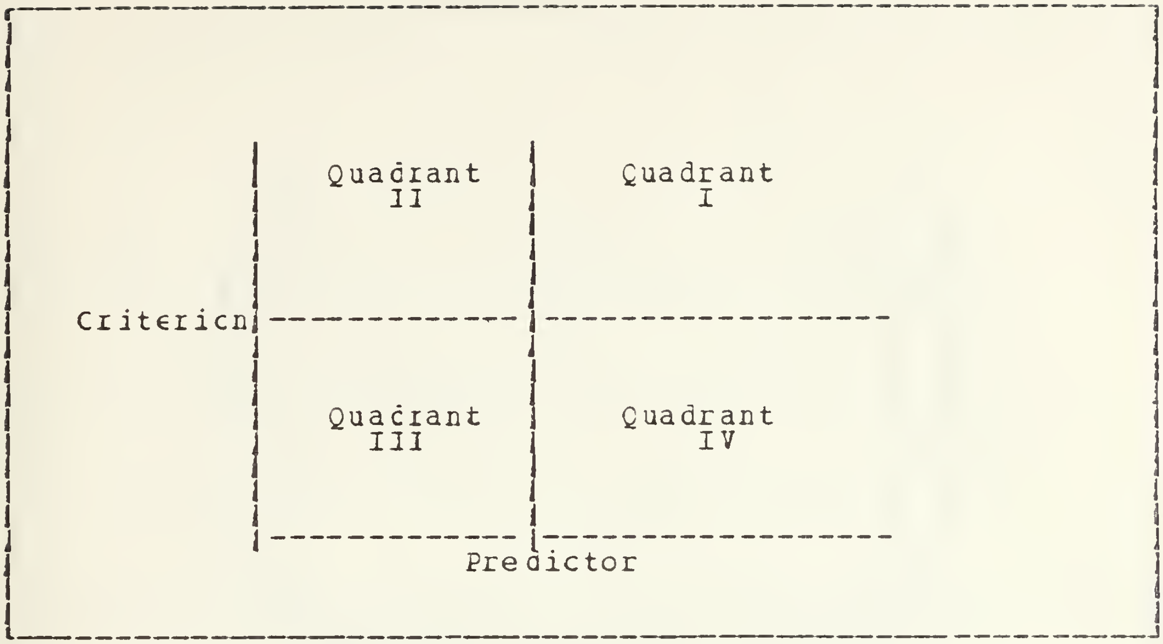

Figure 3.2 The Quadrant Analysis.

The criterion is the NPS first quarter grades and the predictors are university grades and ECL testing scores. The horizontal line in the diagram represents NPS first quarter grades: Assume that those officers attained above this horizontal line are considered successful in the academic performance as rated by the Education Department. Assume that NPS first quarter grade changes from 3.0(B) to 3.6 in increments of 0.1.

The vertical line in the diagram represents the cutting point on the university grade and ECL test score where the officers scoring above this point would be predicted successful in the academic performance and selected at the final selection decision. Assume that university grade changes from 2.4 to 3.3 in increments of 0.1. Assume that ECL test score changes from 80 to 91 in increments of 1.

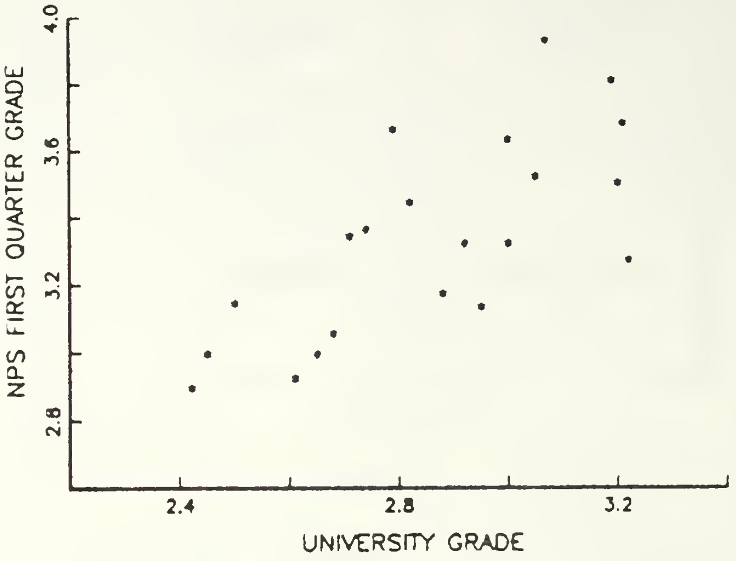

Figure 3.3 Scattergram between The University and NPS Grades.

In figure 3.2 the number of officers who fell into the different quadrant is given according to the criterion (NPS grade) and predictors (university grade and ECL test score). The accurateness of the predictions(X) made by the new cutting university grade and ECL test score is calculated by applying the formula contained in table IV. The base rate(Y) is calculated by applying the formula contained in table IV. The base rate is the proportion of applicants who would succeed on the job if tests were not used to select them. If the base rate approaches 50%, the selection system demonstrates greater value [Ref. 8].

Table III to VII show the results of quadrant analysis.

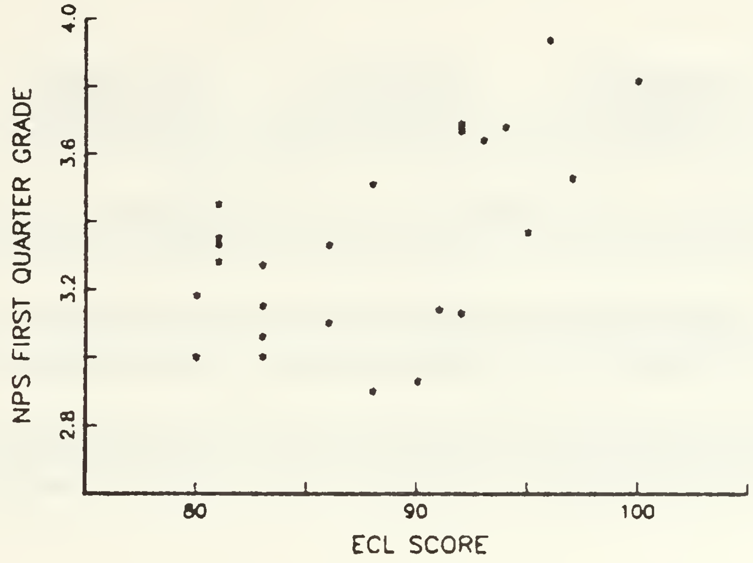

Figure 3.4 Scattergram between The ECL Scores and NPS Grades.

TABLE III

Results of The Quadrant Analysis(I)

Number of Students				NPS grade	UNIV grade	X	Y	S	N
I	II	III	IV						
19	0	0	2	3.0	2.4	0.9	0.9	0.9	1
18	0	1	1		2.5	0.95	0.9	0.95	0.95
17	1	1	1		2.6	0.9	0.9	0.94	0.9
15	2	2	0		2.7	0.89	0.89	1	0.79
12	5	2	0		2.8	0.74	0.89	1	0.63
10	7	2	0		2.9	0.63	0.89	1	0.53
8	9	2	0		3.0	0.53	0.89	1	0.42
4	13	2	0		3.1	0.32	0.89	1	0.21
3	14	2	0		3.2	0.26	0.89	1	0.16
0	17	2	0		3.3	0.11	0.89	1	0
16	0	0	5	3.1	2.4	0.76	0.76	0.76	1
16	0	2	3		2.5	0.86	0.76	0.84	0.9
15	1	2	3		2.6	0.81	0.76	0.83	0.86
15	1	5	0		2.7	0.95	0.76	1	0.71
12	4	5	0		2.8	0.81	0.76	1	0.57
10	6	5	0		2.9	0.71	0.76	1	0.48
8	8	5	0		3.0	0.62	0.76	1	0.38
4	12	5	0		3.1	0.43	0.76	1	0.19
3	13	5	0		3.2	0.38	0.76	1	0.14
0	16	5	0		3.3	0.24	0.76	1	0
13	0	0	8	3.2	2.4	0.62	0.62	0.62	1
13	0	2	6		2.5	0.71	0.62	0.68	0.9
13	0	3	5		2.6	0.76	0.62	0.72	0.86
13	0	6	2		2.7	0.9	0.62	0.87	0.71
10	3	6	2		2.8	0.76	0.62	0.83	0.57
9	4	7	1		2.9	0.76	0.62	0.9	0.48
8	5	8	0		3.0	0.76	0.62	1	0.38
4	9	8	0		3.1	0.57	0.62	1	0.19
3	10	8	0		3.2	0.52	0.62	1	0.14
0	13	8	0		3.3	0.38	0.62	1	0
12	0	0	9	3.3	2.4	0.57	0.57	0.57	1
12	0	2	7		2.5	0.67	0.57	0.63	0.9
12	0	3	6		2.6	0.71	0.57	0.67	0.86
12	0	6	3		2.7	0.86	0.57	0.8	0.71
9	3	6	3		2.8	0.71	0.57	0.75	0.57
8	4	7	2		2.9	0.71	0.57	0.8	0.48
7	5	8	1		3.0	0.71	0.57	0.87	0.38
3	9	8	1		3.1	0.52	0.57	0.75	0.19
2	10	8	1		3.2	0.48	0.57	0.67	0.14
0	12	9	0		3.3	0.43	0.57	1	0

TABLE IV

Results of The Quadrant Analysis(II)

Number of Students I	II	III	IV	NPS grade	UNIV grade	X	Y	S	N
8	0	0	13	3.4	2.4	0.38	0.38	0.38	1
8	0	2	11		2.5	0.48	0.38	0.42	0.9
8	0	3	10		2.6	0.52	0.38	0.44	0.86
8	0	6	7		2.7	0.67	0.38	0.53	0.71
7	1	8	5		2.8	0.71	0.38	0.58	0.57
6	2	9	4		2.9	0.71	0.38	0.6	0.48
6	2	11	2		3.0	0.81	0.38	0.75	0.38
3	5	12	1		3.1	0.71	0.38	0.75	0.19
2	6	12	1		3.2	0.67	0.38	0.67	0.14
0	8	13	0		3.3	0.62	0.38	1	0
7	0	0	14	3.5	2.4	0.33	0.33	0.33	1
7	0	2	12		2.5	0.43	0.33	0.37	0.9
7	0	3	11		2.6	0.48	0.33	0.39	0.86
7	0	6	8		2.7	0.62	0.33	0.47	0.71
6	1	8	6		2.8	0.67	0.33	0.5	0.57
6	1	10	4		2.9	0.76	0.33	0.6	0.48
6	1	12	2		3.0	0.86	0.33	0.75	0.38
3	4	13	1		3.1	0.76	0.33	0.75	0.19
2	5	13	1		3.2	0.71	0.33	0.67	0.14
0	7	14	0		3.3	0.67	0.33	1	0
5	0	0	16	3.6	2.4	0.24	0.24	0.24	1
5	0	2	14		2.5	0.33	0.24	0.26	0.9
5	0	3	13		2.6	0.38	0.24	0.28	0.86
5	0	6	10		2.7	0.52	0.24	0.33	0.71
4	1	8	8		2.8	0.57	0.24	0.33	0.57
4	1	10	6		2.9	0.67	0.24	0.4	0.48
4	1	12	4		3.0	0.76	0.24	0.5	0.38
2	3	14	2		3.1	0.76	0.24	0.5	0.19
1	4	14	2		3.2	0.71	0.24	0.33	0.14
0	5	16	0		3.3	0.76	0.24	1	0

** $X = \frac{I + III}{I + II + III + IV}$
(accurateness of prediction)

$Y = \frac{I + II}{I + II + III + IV}$
(base rate)

** $N = \frac{I + IV}{I + II + III + IV}$
(selection ratio)

$S = \frac{I}{I + IV}$
(success ratio)

TABLE V

Results of The Quadrant Analysis(III)

Number of Students I	II	III	IV	NPS grade	ECL score	X	Y	S	N
23	0	0	2	3.0	80	0.92	0.92	0.92	1
22	1	0	2		81	0.88	0.92	0.91	0.96
18	5	0	2		82	0.72	0.92	0.89	0.79
18	5	0	2		83	0.72	0.92	0.89	0.79
15	8	0	2		84	0.60	0.91	0.87	0.65
15	8	0	2		85	0.60	0.91	0.87	0.65
15	8	0	2		86	0.60	0.91	0.87	0.65
13	10	0	2		87	0.52	0.91	0.85	0.57
13	10	0	2		88	0.52	0.91	0.85	0.57
12	11	1	1		89	0.52	0.91	0.91	0.48
12	11	1	1		90	0.52	0.91	0.91	0.48
12	11	2	0		91	0.56	0.91	1	0.43
20	0	0	5	3.1	80	0.8	0.8	0.8	1
19	1	1	4		81	0.8	0.8	0.83	0.92
15	5	1	4		82	0.64	0.8	0.79	0.76
15	5	1	4		83	0.64	0.8	0.79	0.76
13	7	3	2		84	0.64	0.8	0.87	0.6
13	7	3	2		85	0.64	0.8	0.87	0.6
13	7	3	2		86	0.64	0.8	0.87	0.6
11	8	3	2		87	0.58	0.79	0.85	0.54
11	8	3	2		88	0.58	0.79	0.85	0.54
10	9	4	1		89	0.58	0.79	0.91	0.46
10	9	4	1		90	0.58	0.79	0.91	0.46
10	9	5	0		91	0.62	0.79	1	0.42
15	0	0	10	3.2	80	0.6	0.6	0.6	1
15	0	2	8		81	0.68	0.6	0.65	0.92
11	4	2	8		82	0.52	0.6	0.58	0.76
11	4	2	8		83	0.52	0.6	0.58	0.76
10	5	5	5		84	0.6	0.6	0.67	0.6
10	5	5	5		85	0.6	0.6	0.67	0.6
10	5	5	5		86	0.6	0.6	0.67	0.6
9	6	6	4		87	0.6	0.6	0.69	0.52
9	6	6	4		88	0.6	0.6	0.69	0.52
8	7	7	3		89	0.6	0.6	0.73	0.44
8	7	7	3		90	0.6	0.6	0.73	0.44
8	7	8	2		91	0.64	0.6	0.8	0.4

TABLE VI

Results of The Quadrant Analysis(IV)

Number of Students I	II	III	IV	NPS grade	ECL score	X	Y	S	N
13	0	0	12	3.3	80	0.52	0.52	0.52	1
13	0	2	10		81	0.6	0.52	0.57	0.92
10	3	3	9		82	0.52	0.52	0.53	0.76
10	3	3	9		83	0.52	0.52	0.53	0.76
10	3	7	5		84	0.68	0.52	0.67	0.6
10	3	7	5		85	0.68	0.52	0.67	0.6
10	3	7	5		86	0.68	0.52	0.67	0.6
9	4	8	4		87	0.68	0.52	0.69	0.52
9	4	8	4		88	0.68	0.52	0.69	0.52
8	5	9	3		89	0.68	0.52	0.73	0.44
8	5	9	3		90	0.68	0.52	0.73	0.44
8	5	10	2		91	0.72	0.52	0.8	0.4
9	0	0	16	3.4	80	0.36	0.36	0.36	1
9	0	2	14		81	0.44	0.36	0.39	0.92
8	1	5	11		82	0.52	0.36	0.42	0.76
8	1	5	11		83	0.52	0.36	0.42	0.76
8	1	9	7		84	0.68	0.36	0.53	0.6
8	1	9	7		85	0.68	0.36	0.53	0.6
8	1	9	7		86	0.68	0.36	0.53	0.6
8	1	11	5		87	0.76	0.36	0.62	0.52
8	1	11	5		88	0.76	0.36	0.62	0.52
7	2	12	4		89	0.76	0.36	0.64	0.44
7	2	12	4		90	0.76	0.36	0.64	0.44
7	2	13	3		91	0.8	0.36	0.7	0.4

TABLE VII

Results of The Quadrant Analysis (V)

Number of Students I	II	III	IV	NPS grade	ECL score	X	Y	S	N
8	0	0	17	3.5	80	0.32	0.32	0.32	1
8	0	2	15		81	0.4	0.32	0.35	0.92
8	0	6	11		82	0.56	0.32	0.42	0.76
8	0	6	11		83	0.56	0.32	0.42	0.76
8	0	10	7		84	0.72	0.32	0.53	0.6
8	0	10	7		85	0.72	0.32	0.53	0.6
8	0	10	7		86	0.72	0.32	0.53	0.6
8	0	12	5		87	0.8	0.32	0.62	0.52
8	0	12	5		88	0.8	0.32	0.62	0.52
7	1	13	4		89	0.8	0.32	0.64	0.44
7	1	13	4		90	0.8	0.32	0.64	0.44
7	1	14	3		91	0.84	0.32	0.7	0.4
6	0	0	19	3.6	80	0.24	0.24	0.24	1
6	0	2	17		81	0.32	0.24	0.26	0.92
6	0	6	13		82	0.48	0.24	0.32	0.76
6	0	6	13		83	0.48	0.24	0.32	0.76
6	0	10	9		84	0.64	0.24	0.4	0.6
6	0	10	9		85	0.64	0.24	0.4	0.6
6	0	10	9		86	0.64	0.24	0.4	0.6
6	0	12	7		87	0.72	0.24	0.46	0.52
6	0	12	7		88	0.72	0.24	0.46	0.52
6	0	14	5		89	0.8	0.24	0.55	0.44
6	0	14	5		90	0.8	0.24	0.55	0.44
6	0	15	4		91	0.84	0.24	0.6	0.4

Validity, selection ratio, and base rate act in combination to determine the usefulness of a new predictor. The Taylor-Russel Tables[12] specify the percentage of successful employees resulting from various combinations of validity, selection ratio, and base rate [Ref. 6]. These tables might be used to determine the new cutting score. Therefore, the new cutting score will be determined with the use of quadrant analysis data as well as the Taylor-Russell Tables.

The best cutoffs for university grade and ECL score are decided by the following decision rule: The best cutoff grade and score are at the point, where the value (X - Y) is greatest, and the success ratio (S) and selection ratio (N) are realistically reasonable within subjectively acceptable value.

(1) Assume that those officers who attain the NPS average grade of 3.55 or better are considered successful in the academic performance as rated by the Education Department of Korean military Head-Quarters, the new cutting university grade and ECL score should be applied to the selection of management education. The new cutting university grades of the applicants should be 3.0(B) or better. The new cutting ECL test scores of the applicants should be 90 or better.

(2) Assume that those officers who attain the NPS grade 3.3(B+) or better were considered successful in the academic performance as rated by the education department, the new cutting university grade should be 2.7 or better and the ECL test cutting score should be 87 or better.

---

[12] E. C. Taylor and J. T. Russel, "The Relationship of Validity Coefficients to the Practical Effectiveness of Tests in Selection : Discussion and Tables," Journal of Applied Psychology, 1939, 23, pp. 565 - 578.

(3) Assume that those officers who attain the NPS grade 3.0(B) or better were considered successful in the academic performance as rated by the education department, the new cutting university grade and ECL testing score would be useless.

Overall, to increase the NPS academic performance of Korean students, (1) The Education Department should recruit and select the applicants who have attained higher university grade and (2) The ECL test score should be increased by reinforcing the training of the English language through a longer period of training.

4. Deciding Selection Strategy

When deciding the selection strategy, there are a number of ways to proceed, (1) NPS requirements (minimum), (2) Multiple cutoff and (3) Multiple regression.

A combination of the multiple cut-off and multiple regression approaches is optimal. The multiple cut-off method might be used initially to select individuals on those variables where certain minimum levels of ability are mandatory. Following this, the multiple regression method may then be used with the predictors to forecast criterion status [Ref. 5].

- First strategy (NPS)

All the selectees must attain a minimum score of 80 on the ECL test and receive the average grade of the university. These minimum levels are required for the management education in NPS.

- Second strategy (multiple cutoff)

To increase the academic performance of management education in NPS, application of the new ECL cutting score and university grade is desirable. All the selectees must attain a score of 90 or more on the ECL test and simultaneously receive a grade of 3.0 or more at the university. If the final selectees fall within this category, they are the most desirable applicants and offer the highest potential to achieve high academic performance in the management education. If the number of final selectees belonging to this category are over or under the required number of officers for the overseas education, the third strategy should be applied to select the best applicants.

- Third strategy (multiple regression)

The weights which enter into a multiple-regression equation are determined entirely by statistical considerations. Predictors which have high correlations with criterion performance and are relatively independent of other predictors are given the largest weights. Predictors which have relatively low correlations with criterion performance or are highly related to other predictors are given correspondingly smaller weights. Although the statistical weightings are constant for all individuals, the predictor scores will vary widely from individual to individual. Hence it is possible for individuals with widely differing profiles of predictor scores to obtain identical scores for the criterion being predicted. [Ref. 11]. The university grade and ECL score by the results of the stepwise regression are important for predicting the academic performance in the management education. Therefore, the following equation is formulated by using the weights in the equation between them and the NPS first quarter grade.

$$Y = -0.203 + 0.679X1 + 0.019X2 \qquad \text{(eqn 3.1)}$$

Y(criterion score) is a function of the university grade(X1) and ECL score (X2). If applicant receives higher values of Y, he will be selected.

The application of the three selection strategies will eliminate the subjective selection decision for the overseas education and increase the efficiency of the selection system.

C. PROBLEMS OF THE CURRENT SELECTION SYSTEM AND THE SOLUTIONS

Under the current selection system, the Korean students have attained very low grade compared with the other students in the last five years.The NPS grade distribution study shows that the average grade[13] of the Administrative Science students in the last five years is 3.55. But, out of the Korean students who have graduated from the NPS in the last five years, only 10.6% of the students have attained a grade higher than the average.

To increase the level of academic performance from the overseas education, the problems of the current system must be identified from the analysis of the current system and eliminated through redesigning the selection.

The following factors provide a clarification of shortcomings of the present system based upon the results of the analysis.

1. The Priority of The Predictors

Under the current system, the priority of the predictors are as follows : First, ECL testing scores. Second, interview results. Third, university grade. Fourth, past performance and career.

---

[13] The following is each year's average grade of management curriculum at NPS: fall '78 - summer '79: 3.57; fall '79 - summer '80: 3.55; fall '80 - summer '81: 3.54; fall '81 - summer '82: 3.57; fall '82 - summer '83: 3.55. The average grade of the five years is 3.55. This data comes from "The NPS Grade Distribution Study."

But, it has been found that the university grade is more valid than the ECL score in predicting the NPS grade. The priority of the predictors should be rearranged as follows: First, university grade and mathematics grade of the university subject. Second, ECL score. Third, interview results. Fourth, past performance and career.

2. There is no Desirable Cutting Standard

Under the current selection system, the majority of Korean students who have graduated from the management education curriculum at the NPS attained a grade lower than the NPS average. The same is true for the present students. As the Education Department regard the high academic performance of postgraduate level education as a good indicator of an effective manager, application of the new cutting score and grade as the standard of selection might increase the academic performance of the Korean students. If the Education Department wants to apply the new cutting score as the selection standard of management education, the new selection system of candidates should be designed with the combination of all the other suggested ideas based on the analysis of the current system.

3. No Comprehensive Selection Strategy

The Education Department regards the ECL score as the first important factor for the overseas education selection. The others are only supplementary factors to increase the identification of the desirable applicants. Therefore, when selecting the applicant, a lot of subjective judgement is activated to decide the selection strategy.

But, the application of the new selection strategy not only eliminates the subjective decision of the selectors but also decreases the complaints of those not selected for overseas education.

4. Low level and limited style of the ECL test

The form of the ECL testing is centered upon listening ability. But, speaking, comprehension, and writing ability as well as listening ability are also important to the Korean students. Furthermore, the validity of ECL testing is relatively lower than university grade based upon validity analysis and almost all the Korean students have had a difficult time in studying due to the English language problems.

Next factors must be considered to solve the English language problems:

(1) The new style of ECL test must be more comprehensive and valid than the present style. (2) The expansion of language training time: It is very difficult for Korean officers to have spare time to increase English language ability during the regular duty time. Therefore, the Education Department must provide a longer formal language training time than the six months which is currently allowed.

The strength of English language training will certainly increase the individual's chance of learning and understanding the essential theory of management education.

5. No Desirable Process of Identifying Personal Characteristics

The correlation of ECL point with the NPS first quarter grade: r=0.6467. The correlation of ECL point with the NPS total quarter grade: r=0.3828. The correlation of ECL point with the NPS graduate course grade: r=0.2884.

The correlation of ECL point with the first quarter grade is higher than the correlation of ECL point with the total quarter grade. The correlation of ECL point with the NPS graduate course grade is low.

The drop of the ECL correlation with the NPS total grade and graduate course grade may be explained by the following reasons: (1) The subjects are more difficult as the quarter of the school year progresses. (2) The level of ECL test is not suitable with the educational level of NPS. The preceding two reasons are the supplementary evidence for changing the level and style of the ECL test. (3) Lack of interest for management education and lack of incentive for high performance as the quarter increases due to the relatively low output compared with the student's effort.

Therefore, to eliminate the chance of education failure and to increase the grade from management education, desired selection procedure should be designed to identify those officers who will become effective managers as well as those who are likely to achieve outstanding academic performance.

IV. PERSONAL CHARACTERISTICS FOR IDENTIFYING MANAGEMENT POTENTIAL

Management becomes any activity which involves leading any group of people toward the attainment of common objectives in any walk of life [Ref. 15]. Therefore, good managers, ones who get the best out of their subordinates and who thereby produce positive results for their organizations, are the keys to an organization's success [Ref. 16]. To ensure selection of the best candidates for management education, identification of personal characteristics of effective managers is important. To increase the efficiency of managerial selection, first, the personal characteristics of a good manager must be defined. Second, the assessment method for identifying the personal characteristics of the candidates should be designed.

A. PERSONAL CHARACTERISTICS OF EFFECTIVE MANAGER

First, good managers care about institutional power and use it to stimulate their employees to be more productive. Of the managerial types, the institutional manager is the most successful in creating an effective work climate. Also, this kind of manager creates high morale because he produces the greatest sense of organizational clarity and team spirit. The institutional managers have five major personal characteristics:

(1) They are more organization-minded; They tend to join more organization and to feel responsible for building up an effective work climate. (2) They like to work; People who have a high need to achieve like to get out of work by becoming more efficient. But, managers who have a need for

institutional power actually seem to like the discipline of work. It satisfies their need for getting things done in an orderly way. Furthermore, they believe strongly in the importance of centralized authority. (3) They seem quite willing to sacrifice some of their own self-interest for the welfare of the organization they serve. (4) They have a keen sense of justice. It is almost as if they feel that if a person works hard and sacrifices for the good of the organization, he should and will get a just reward for his effort. (5) Maturity; Mature people can be most simply described as less egotistic. Somehow their positive self-image is not at stake in what they are doing. They are less defensive, more willing to seek advice from experts, and have a larger range view [Ref. 16].

Second, the more fully human organization is distinguished from a machine and recognized as a structured combination of self-conscious, self-determining individuals, the more significant becomes the role of the leader in human organization [Ref. 2]. Furthermore, in view of the mounting problems of the organizations today, the leaders must have following personal characteristics: (1) A great need of human understanding, (2) A capacity for introspection, (3) Intuitive integrity, (4) A sense of total responsibility, (5) Courage (6) Decisiveness, and (7) A desire for accomplishment [Ref. 2].

Third, a list of desirable managerial traits in describing and predicting managerial effectiveness includes the following: (1) Able to sustain defeat, (2) Alert, (3) Ambitious, (4) Assertive, (5) Good judgement, (6) Competitive, (7) Extroverted, (8) Fearful of failure, (9) Group- oriented, (10) Honest, (11) Intelligent, (12) Mentally healthy, (13) Concrete, (14) Creative, (15) Decisive, (16) Dedicated, (17) Dynamic (18) Emotionally stable, (19) Energetic, (20) Optimistic and confident, (21) Pragmatic, (22) Predictable, (23) Reality-oriented, (24) Self- controlled but defensive, and (25) Tolerant for frustration. These traits looks like displaying just about human virtues [Ref. 17].

Overall, effective management involves a set of personal characteristics which at least vary from situation to situation, and with the respect to people involved. Conceptually, approaching the problem from this point of view, it should be possible to arrive at some basic characteristics necessary for effective management in the particular organizational situations. The particular situations of the Korean military organization, which require unique demands on the effective managerial officers owing to the growing complexity of duties beyond the combat skills and the intensive emphasis of the rationalized military organization, make many implications for the military officers in managerial positions.

Because of the particular situations of the Korean military organizations, the following characteristics play an important role in determining the effectiveness of a particular officer's job performance in managerial positions. These same characteristics are needed to ensure the high academic performance of management education at NPS.

1. A great need of human understanding: As the leader's role is to gain responsibility from people, he must in some way relate to them. There is no person more important in a vast system of interrelations than the one at the top. In human organization the leader's sensitive understanding of human nature is more vital to his performance than any vast accumulation of knowledge or skills concerning science, technology, statistics, or abstract reasoning [Ref. 2]. Under the conscription system of the private group, this characteristic is important for increasing the understanding between personnel.

2. Self-sacrifice: The effective managers seem quite willing to sacrifice some of their own self-interest for the welfare of the organization they serve [Ref. 16]. This does not refer to the officer's readiness to sacrifice his life in a combat situation but rather his willingness to sacrifice some of his self-interest for the benefits of the organization. This characteristic is necessary for the military manager who is responsible for making the military organizations sophisticated.
3. Keen sense of justice: Effective managers feel that if a person works hard and sacrifices for the good of the organization, he should and will get a just reward for his effort. Moreover, managers who have a need for institutional power actually like the discipline of work. It satisfies their need for getting things done in an orderly way [Ref. 16].
4. Adaptability: Effective leadership is the behavior which is most appropriate to the situation at the time. Rather than assuming a predetermined leadership mode, the leader must respond to concurrently the nature of the problems, the needs of his organization, the interacting environmental forces, and the capability of all the individuals concerned [Ref. 18]. Therefore, the effective managers must have the sensitivity to understand the change and the ability to adapt to the changing requirements of his job. The effective manager usually has a high ability to adapt.
5. Responsibility: The leader of human organization in a free society is charged with the responsibility of developing a complex and coordinated system of responses from many individual centers of reaction and initiative [Ref. 2]. As the military personnel

are requiring a more rationalized system in which they operate and are anticipating more complex and diversified responses from their leaders due to the higher educational level of the military personnel under the conscription system of the private group, the military leaders have a great responsibility for developing a complex and coordinated system of rational responses from the military personnel.

6. Strong desire for accomplishment: The military operates under difficult and arduous working conditions owing to tensions with North-Korea. Sometimes, military personnel must perform duties within strict time schedules even under difficult conditions. Accomplishment of these duties within prescribed time schedules is critical for national security.
7. Tolerance for frustration and stress: This characteristic is very important not only for increasing the academic performance but also for increasing the efficiency of the military organization. Korean students at NPS usually experience high stress due to language problems and extensive workload. Furthermore, a lot of stress and frustration push upon the military managers during regular service time. The ability of tolerance for frustration and stress is very important characteristics of Korean students for increasing the academic performance as well as for increasing the efficiency of the military organization.
8. Intuitive integrity: Not only does the effective coordination of the various parts of the business depend on the conceptual skill of the administrators, but also does the whole future direction and tone of the organization [Ref. 19].

After the completion of management education, Korean students are assigned to the special staff of the Head Quarters and become the individual managers of important military units. It follows that intuitive integrity is a critical factor for the effective coordination of the various parts of the military units as well as for the future direction of the military organizations.

9. Maturity: Mature people can be most simply described as less egotistic. Somehow their positive self-image is not at stake in what they are doing. They are less defensive, more willing to seek advice from experts, and have a longer range view [Ref. 16]. There are lots of communication problems between the military personnel due to the highly authoritarian rules. Therefore, maturity is an important factor in making the military a rational and sophisticated organization.
10. Organization-minded: Good managers tend to join more organizations and to expand their individual power for the purpose of increasing organizational productivity by means of establishing effective work climate. Especially, this characteristics of organization-minded is very important for establishing effective and rationalized military system under the transitional period of reorganization.

E. EVALUATION METHOD OF IDENTIFYING PERSONAL CHARACTERISTICS

In order to identify good managers, the assessment data of managerial selection can be collected judgemently (e.g., interviews, ratings of performance on situational test), mechanically (e.g.,paper and pencil tests), or in both ways [Ref. 5].

Among paper and pencil tests, psychological test is nice tool. But, all psychological testing should be properly supervised and some tests, such as projective tests, should be administered only by qualified psychologists. In general, interpretation of psychological test calls for a much higher level of professional skill, and a sizable number of tests should be interpreted only by qualified psychologists. Personality tests, in particular, are subject to misuse in the hands of the layman[14] [Ref. 7]. Furthermore, there is evidence that faking can take place on these questionnaires, and there is definitely no justification for a personnel manager to utilize such a test [Ref. 20]. As far as this writer is informed, the psychological tests have not yet shown a high validity in the Korean military. They are under the experimental stage due to the lack of the professional skill and the time constraint. As a judgemental method, the use of interview and past performance are more useful and expedient than the other method under the current system.

1. Interview

The interview, which has been called a "conversation with a purpose," is used almost universally in the staffing process [Ref. 7].

Traditionally, oral tests have been used for several purposes : to test knowledge and skills; to evaluate training and experience; and to appraise personal qualities [Ref. 21]. [Ref. 7].

Key types of interviews are the depth interview, the free associative interview, and the patterned interview. Depth interview attempts to develop evidence about deeper aspects of motivation and personality. The interpretation of depth interview, however, requires psychological background and insight. In the free associative interview, the interviewer needs experience and skill to follow the meanderings of the applicants and to keep in mind the main points that need to be covered so that the result will be integrated and meaningful. A patterned interview provides a highly structured, systematic guide serving as a stable yardstick against which applicants may be measured. Such a patterned interview will appeal particularly to the manager or interviewer who likes an orderly, consistent approach in which the time can be controlled and limited [Ref. 20].

---

[14] For a further discussion of who is qualified to use psychological tests and for suggestions on how to locate qualified psychologists, see Wendell French, "Psychological Testing: Some Problems and Solutions," Personnel Administration, 29, pp. 19-24, March-April, 1966.

Overall, patterned interview seem to be more useful and expedient than the other method of interview due to the lack of personal skill and time constraint.

McMurry [Ref. 22] explains why the patterned interview employed with other devices is likely to improve the judgement of the interviewers : First, the interviewer works from definite job specifications; he knows what qualities each job requires. Second, he has a plan; he knows what questions to ask. Third, he has been trained in the techniques of conducting an interview (i.e., he knows how to put the candidates at ease, how to make him talk, and how to extract pertinent information). Fourth, prior to the interview, he has checked with outside sources (previous employers, schools, etc.) and already knows a great deal about the applicant. Fifth, he has a series of clinical concepts (e.g., emotional immaturity) - which provide him with a yard stick for interpreting and evaluating the information obtained from the candidates. Sixth, the interviewer himself has been carefully selected to assure that he has adequate intelligence and is emotionally well-adjusted [Ref. 22]. Research on interview as a means of selection has provided a wide range of results.

As the interview techniques became more systematized and the interviewers better trained, consistently better results were reported. It is recommended practice that interviewers take into account the various needs of the person being interviewed. This would include the needs for security, belongingness, esteem, wholeness, and self-actualization. Orderly proceedings, cordiality, and the avoidance of unnecessary ego-damaging events are ingredients found in the best interviews. An applicant who is kept waiting unduly, treated coldly, insulted, or given no information is likely to display defensive behavior, such as anger or humiliation. The ill-will resulting from an unsatisfactory interview could seriously affect relations with employees or the community. The consequence of the interview, such as acceptance or rejection of the applicant, will obviously have important ramifications in need fulfillment.

The rating process of the interview is subject to various errors: First, leniency. Raters tend to give candidates the benefits of any doubt; it is common to find 60 - 80 % rated as above average. Second, central tendency. This error, as the name implies, is the tendency for raters to bunch their ratings in the center of the scale and to avoid the extremities. Third, Halo effect. If a candidates creates a favorable impression by his excellence in one trait, he may be rated well above average in every trait without discrimination. If he has created a bad impression in one trait, raters may find it difficult to shake off that impression when rating him on various other traits the tendency toward halo increases as the number of traits to be rated increases. Fourth, stereotypes. This error results when raters base their ratings on the old type fallacy [Ref. 21].

In the well designed patterned interview, the Education Department can obtain a comprehensive picture of the candidate's aptitudes, abilities, training experience, personality, and characteristic traits as related to the position for which he is being considered.

2. Appraisal of Past Performance

Performance appraisal is the systematic description of individual job-relevant strengths and weakness. Such information is useful in a variety of contents: As a basis for personnel decisions, as a criterion in personnel research, as a predictor of future performance, as an aid in establishing training objectives, and as a personnel development tool.

performance measures can be classified into two general types: Objective and subjective. Objective performance measures include production data as well as personnel data [Ref. 5].

Officers have several key records of past performance through the military service. Therefore, objective performance measures can be used to evaluate the past performances of officers for the purpose of identifying the personal characteristics of effective managers. In differentiating officers for a specific privilege, the records of past performance can be used as an important differentiating factor for comparing candidates against one another. As key records of past performance for identifying the successful officers for higher academic grade, the following can be taken into accounts: (1) OBC (Officer's Basic Course) grade. (2) CAC grade. (3) The Grade of the other military school.

As key records of past performance for identifying the better future manager, each candidate's past performance in a leadership role can be taken into consideration.

Objective measures focus not on behavior, but rather on the outcomes or results of behavior. Admittedly there will be some degree of overlap between behavior and results, but the two are qualitatively different. Therefore, although objective measures of performance are intuitively attractive, theoretical and practical limitations often make them unsuitable [Ref. 5]. On this point, objective method of past performance appraisal can be used by the Education Department of Korea military as supplemental device to the results of of the interview (appraisal can serve as the criteria in personal research: the validation of the interview results). Especially, the results of past performance can be used to identifying the following characteristics among the desirable personal characteristics mentioned previous: (1) The degree of responsibility, (2) Desire for accomplishment, (3) Organization-minded, and (4) Tolerance for frustration and stress.

Overall, the Education Department must utilize the interview and appraisal of past performance as the identification tool of the effective manager and student. If the Education Department use the interview and appraisal of past performance as the differentiating device for comparing candidates for management education as well as the deciding standard for general education selection, the identification of desirable personal characteristics as a effective manager can be increased.

V. DESIGN OF REAL SELECTION MODEL

A. NEW FACTORS OF INCREASING THE EFFICIENCY OF SELECTION PROCEDURE

On the basis of what has been discussed up to this point, the following factors seem to have an important role in increasing the efficiency of the selection process:

1. Educational Background

Most investigators reported that preparatory school grades were good predictors of scholastic grades. Among the educational backgrounds, the important correlation with NPS grades is as follows:

First, the university grade has a strong relationship With NPS first quarter grade (r=0.7256).

Second, the mathematics and English grades show a relatively higher relationship with NPS first quarter grade than the statistics and economics grades (mathematics: r=0.4873, English: r=0.2680, economics: r=0.1117, statistics: r=0.0780).

Third, high school grades by subjects area are useless as predictors due to very low validity with NPS grade. (mathematics grade: r=-0.2313, English grade: r=-0.0727).

Strength in mathematics and English training will certainly increase the individual's chance of acquiring analytical ability and in learning the quantitative methods of problem solving which are necessary for today's manager in a technical profession. These managerial skills are probably obtainable only through formal education.

2. Past Performance Appraisal

The current selection procedure takes into account the past performance only as a determinative standard. But, in considering officers for a specific privilege, the record of past performance can be used as an important differenting factor for comparing candidates against one another.

As a key record of past performance for identifying the successful officers for higher academic opportunities the followings can be taken into account: OAC (officer's advanced course in Korea) score, and the academic performance at the other military schools.

As a key record of past performance for identifying the better future managers, each candidate's past performance in a leadership role can be taken into consideration.

3. Patterned Interview

A patterned interview provides a highly structured, systematic guide serving as a stable yardstick against which applicants may be measured. Such a patterned interview will appeal particularly to the manager who likes an orderly, consistent approach in which the time can be controlled and limited [Ref. 20].

The patterned interview procedure utilizes a form for obtaining and recording information about seven areas: previous experience, training, manner and appearance, sociability, emotional stability, maturity, and leadership capacity [Ref. 23]. Therefore, In the well designed patterned interview, the Education Department can obtain a comprehensive information about the candidate's personal characteristics as related to the management education.

4. Equal Selection Opportunity

Those officers who really have the desire and a greater potential for becoming competent managers are occasionally overlooked by the Education Department because of poor communication systems. Therefore, Communication with qualified officers is necessary as it increases opportunity to eligible and willing officers to apply for management education and also increase the organization's possibility of making a better choice of available officers.

In the case of the U.S. Navy selection,[15] a selection board is convened annually to select officers based on professional performance, academic background and ability. Selection is restricted to quotas which reflect the Navy's requirements in the various fields of study available. Officers are notified of selection by official correspondence at the earliest possible time after the selection board meets out.

Through communicating with all officers, The Korean military can eliminate the problem of overlooking qualified officers.

5. Good Plans of Career Path

Careers develop in response to interactions with others and also in relation to developing environments. Hence, it is useful to consider jobs as changing functions within changing systems, rather than as static rungs on the ladder of success [Ref. 18].

When the individual's values and career goals mesh with the organization's needs and goals, an effective integration of the individual and the organization can occur. Under these ideal conditions, the individual is motivated to develop the abilities and skills necessary to take on new jobs in the organization and the organization is likely to respond by providing the individual with the kinds of developmental opportunities he needs. On the other hand, when individual/organizational needs and goals conflict, employee dissatisfaction and organizational ineffectiveness are likely to result [Ref. 5].

---

[15] Academic Year 1984 Catalog, Naval Postgraduate school, 75th, Anniversary, 1984.

Therefore, poor assessment of the the individual's capabilities and career goals (either overestimation or underestimation) by the organization frequently leads to problems for both parties. High-potential people may not be developed and low-potential people may be assigned jobs they cannot handle. Both types of errors lead directly to high turnover, dissatisfaction, and feeling of frustration [Ref. 5].

In order to do career planning completely, three steps are required :

First, determine how the person should behave when he reaches the jobs for which he is being prepared. Thorough job analysis, with special emphasis on employee-determined changes, is fundamental to this process.

Second, determine whether the person has the capability to develop the kinds of behaviors that will be needed for the career plan. This implies a systematic approach to the assessment of response aptitudes (e.g., through testing or assessment center procedures).

Third, determine whether the individual wants to learn the required new behaviors and whether the career plan that the organization is considering is congruent with the individual's own plan [Ref. 5].

In support of career plans that the organization is considering, the high potential officers must be exposed to the academic opportunities that will benefit the career plan.

6. The Application of New Selection Strategy

Under the current selection system, the majority of Korean students who graduate from the management curriculum at NPS are doing so with below average grades. Therefore, applying the new selection strategy as the standard of selection may serve to increase the academic performance of management education at NPS.

E. NEW SELECTION MODEL

In order to meet the management education objectives, all new factors have been combined to form the primary criteria of the effectiveness of management education program in the Korean military. It should be remembered that this study is primarily concerned with the selection procedure of management education and that the effectiveness of the management education program is contingent upon the best selection of candidates.

Table VIII shows the new selection process.

TABLE VIII

New Selection Process

```
         All Units
        -----------
             |                    ** (1) First screen
             |                       based on 5 general qualification.
 long-term   |   Short-term
 needs   --->|<--- needs          ** (2) Second screen
             |                       based on evaluation of personal
             |                       characteristics, the first and
             |                       third selection strategies.
             |
             |                    ** (3) Final screen
    Manpower Planning                based on the second and third
    Department                       selection strategies.
   --------------------
             |
Decision of  |    Decision of
career path-->|<-- annual numbers            ------>Initial ECL
             |    of education             |         test
             |                             |          |
    Education Department------------------>|       Interview
   ----------------------                  |          |
             |                             |          | **(2)
    Decision of recruiting                 |        First selection
    method                                 |          |
             |                             |          |
    Distribution at All Units              |        Training at
             |                             |        the military
             |                             |        language school
             |                             |          |
    Application blank                      |        Application to NPS
    from the applicants                    |          |
             |                             |          |
    Check of test qualification            |        Admission to NPS
             |                             |          |
    No<------|   First screen of           |        Formal ECL test
             |   the applicants            |          |
             | **(1)                       |          | **(3)
```

A critical point in any manpower system in an organization must lie in the relationship between selection and development. It is quite obvious that the needs of the organization dictate whether or not certain selection procedures are more efficient than simply taking a man of the floor and attempting to develop him [Ref. 24]. Therefore, the selection model (table VIII) is intended to represent definite and detailed selection procedures for the purpose of increasing the efficiency of selection process. The main steps of a selection model which contain suitable elements for achieving the objective of the particular steps, will be discussed and described.

1. The Processes of Recruiting Highly Qualified Candidates

a. Good Plans of Career Path for The Overseas Education Officers

When the individual's values and career goals mesh with the organization's needs and goals, an effective integration of the individual and the organization can occur. Under these ideal conditions, the individual is motivated to develop the abilities and skills necessary to take on new jobs in the organization and the organization is likely to respond by providing the individual with the kinds of developmental opportunities he needs [Ref. 5]. Therefore, in support of career plans that the organization is considering, the high-potential officers must be exposed to the academic opportunities that will benefit the career plan.

b. Communication with All the Qualified Officers

Communications with all the qualified officers is an important for decreasing the resentments of those groups of officers who may believe they are deprived of a good career development opportunity. The U.S. Navy[16] has quite eliminated almost the problem discussed in the preceding paragraphs, through asking all its officers who desire Navy funded postgraduate education to indicate or update their curricula preference annually.

c. Application Blanks from the Applicants

The purpose of the application blank is to secure desired information from an applicant in a form convenient for evaluating the applicant's qualifications [Ref. 7].

When the Education Department wants to check the general qualifications of the applicants, the application blanks can be used as a preliminary screening device as well as for gathering general background data for predicting the successful academic performance of overseas education.

Overall, these three processes are necessary because it gives an equal opportunity to every eligible and willing officer to apply for management education and it also increase the organization's possibility of making a better choice from the available officers.

2. Data Selection for the First Selection

The objective of this part is to collect a lot of data for selecting high-potential candidates.

a. Check for Test Qualifications

(1) OAC Education. Ensuring that the applicants must have finished the OAC education.

---

[16] Academic Year 1984 Catalog, Naval Postgraduate School, 75th Anniversary, pp. 6 - 12, 1984.

(2) Company Level of Commander. Ensuring that the candidates have completed the company level commander prior to the scheduled formal education period.

(3) University Grade and University Subject Grade. A baccalaureate degree with above average grades is required. Completion of at least two semesters of college algebra or trigonometry is considered to be the minimum mathematical preparation.[17]

The applicant must have at least the grade average of the university. He must have 3.0 or better in mathematics, English, economics, and statistics.

(4) Clear Service Record. No instances of judicial punishment during his military service.

(5) Past Performance. The ratings of his past performance are middle or above.

b. Initial ECL Test

TO check the English comprehension level of the candidates, the candidates must take the initial ECL test given by the Education Department. The testing style must be comprehensive to include evaluation of listening, comprehension, and writing skills.

c. Appraisal of Past Performance and Interview

This process will meet the objective of assessing the desired personal characteristics in candidates.

(1) Appraisal of Past Performance. Performance appraisal is the systematic description of individual job strengths and weaknesses. Such information is useful in a variety of contexts : as a basis for personnel decisions, as a criterion in personnel research, as a

---

[17] See footnote 16.

predictor of future performance, as an aid in establishing training objectives, and as a personnel development tool [Ref. 5]. The applicant's scores in the following categories of past performance appraisals must be within the acceptable limites for advanced education.

The grade of OAC education: The OAC grade of the candidates must be of the "A" grade group.[18]

The performance level of the company level leader: the level of the past performance in a leadership role must belong to the middle or above group.

The total level of the past performance : the total level of the past performance of the candidates must belong to the middle or above group.

BY the analysis of past performance, the Education Department must identify the characteristics of good managers and the high academic performance potential of candidates. Under this contexts, the Education Department can use the data of the past performance as the differentiating device of the candidates' characteristics.

(2) Patterned Interview. The basic purpose of the patterned interview is to collect the information from the applicants. Through the patterned interview, it is possible to make an assessment of characteristics in which appraisals of past performances fall short. It should be emphasized that the Education Department must do its best in identifying the personal characteristics of candidates which indicate potentially successful managers.

It will be a beneficial effort to the organization not only for the purpose of improving the selection for management education, but also for the purpose of increasing the benefits to the organization after the formal education.

---

[18] The top 30% of all officers attending the OAC education is rated the "A" grade. OAC: officers' advanced course (Korea)

The combined informations from the application blank, appraisal of past performance, and interview will be used as the key of screening the extremely inappropriate applicants for the formal education.

3. First Selection

The Education Department will select the required number of applicants based on the selected data about candidates. Three times the number of required applicants are selected during the first selection. In the first selection, the Education Department should be on the basis of the standing of candidates in the list of the past performance and interview scores. If the candidates come up to be in the inappropriate category of the personal characteristics, such candidates will be skipped. In fact, human behavior has been considered too complex to be scaled along a few dimensions and then rated [Ref. 25]. Therefore, only the extreme cases of inappropriateness can be relied on with certainty when the Education Department screens the candidates by the personal characteristics at the first selection.

After eliminating inappropriate candidates, the first and third strategy among the new selection strategies should be applied to select the three times of the required number of applicants.

All the first selectees must attain a minimum score of 80 on the initial ECL test and receive the average grade of the university (first strategy). If the first selectees belonging to this category are over the three times of the required number of officers, the third strategy will be applied. The following equation will be used to the selection device.

$$Y = -0.203 + 0.679X1 + 0.019x2 \quad \text{(eqn 5.1)}$$

Y (criterion score) is a function of the university grade (X1) and the ECL score (X2). If applicant receives higher values of Y, he will be selected. After the decision of the first selection, all the first selectees should receive the language training for six months. After the completion of the language training, all the first selectees should take the formal ECL test given by the Education Department of the U.S. 8th Corps in Korea.

4. Final Selection

With respect to final selection, the Education Department should resort to the additional achievement data (i.e., the results of the military language school, the formal ECL scores, and the acceptance from the NPS). First, if the candidates are not accepted by NPS, they will not be considered candidates. If the candidates do not attain the required scores of formal ECL tests, they will also be skipped. With these two eliminations, the Education Department should select the final candidates by the application of the second and third strategies.

All the final selectees must attain the new cutting score of 90 or more on the formal ECL test and simultaneously receive the cutting grade of 3.0 or more at the university. If the number of final selectees belonging to this category are over or under the required number of officers for the overseas management education, the third selection strategy should be applied to obtain the best applicants.

VI. CONCLUSION

This study was aimed at evaluating the priority of the predictors, designing identification method of personal characteristics for management education, and making the comprehensive selection strategy to increase the potential benefits for the military organizations as well as to increase the academic performance from the overseas education. As a result of this study, a new selection model was proposed. The proposed selection model which consisted of the detailed selection process is applicable for selection of Korean officers for postgraduate education in management.

The critical results of this study will be summarized as follows:

The university grade has a stronger relationship with NPS grade than the ECL test score. Mathematics and English grade among the spectrum of university subjects observed have relatively high correlations with NPS grade.

The utilization of the application blanks, the appraisal of past performance, and the patterned interview can be the identification tool for the effective manager as well as for the good student and can contribute considerably to the effective selection of the highly qualified officers for management education.

The first strategy is important for providing the standard of the first selection. All the selectees must attain a minimum score of 80 on the ECL test and receive the average grade of the university.

The second strategy is important for providing the standard of selecting the applicants who can attain outstanding scholastic performance. All the final selectees should attain a score of 90 or more (English training between first and final screen is critical if formal ECL scores are to increase) on the ECL test and simultaneously receive a grade of 3.0 or more at the university.

The third strategy is important for obtaining the required number of officers for management education at the first and final selection. If the number of first and final selectees are over or under the required number of officers for overseas education, the following equation can be applied to obtain the required number of officers.

$$Y= -0.203 + 0.679X1 + 0.019X2 \qquad \text{(eqn 6.1)}$$

Y(criterion score) is the function of the university grade(X1) and ECL score(X2). The constant numbers of the equation are the regression coefficients. If applicant receives higher value of Y, he will be selected.

Before terminating this study, several recommendations about the proposed selection model will be mentioned.

First, the application of the new selection strategy not only eliminates the subjective decisions of the selectors but also decreases the complaints of those not selected for overseas education.

Second, the combined information from the application blanks, the appraisal of past performance, and the interview can be used as the key for screening out extremely unqualified applicants based on the personal characteristics for management education.

Third, this analytical approach provides the general basis for redesigning other selection systems.

Fourth, good career plans for overseas education officers should support the application of the proposed selection system.

Fifth, English language and mathematics training can increase the individual's chance of learning and understanding the essential theory of management education.

Sixth, The Education Department can make systematic and ratical selection decisions by the application of the proposed model.

Seventh, scientific methods utilizing a different approach for evaluation of the personal characteristics should be designed and applied.

APPENDIX A

SPSS PROGRAM FOR REGRESSION ANALYSIS

```
run name       thesis
file name      thesis
variable list  UNIV,ECL,FIRQ,TOT,STAT,ENG,MATH,
               ECO,HENG,HMATH,GRAD
var lables     UNIV, university grade/
               ECL, English comprehension score/
               FIRQ, NPS first quarter grade/
               TOT, NPS total average grade/
               STAT, university statistics grade/
               ENG, university English grade/
               MATH, university mathematics grade/
               ECO, university economics grade/
               HENG, high school English grade/
               HMATH, high school mathematics grade/
               GRAD, NPS graduate course grade
n of cases
input medium   card
input format   fixed (7X,F4.2,F3.0,2(2X,F4.2),
               6(1x,F4.2),2x,F4.2)
missing values STAT(-1),ENG(-2),MATH(-3),ECO(-4),
               HENG(-5),HMATH(-6),UNIV(-7)
read input data
scattergram    FIRG(2,4) with UNIV(2,4) /
               FIRQ(2,4) with ECL(70,100)
option         2 4 5 6 7
statistics     all
new regression descriptives/missing=meansubstitution/
               variables=UNIV,TOT,FIRQ,MATH,ENG,ECO,STAT/
               statistics=all/
               dependent=TOT,FIRQ,GRAD/ENTER UNIV,
ECL,MATH,ENG,ECO,STAT/
depentent=TCT,FIRQ,GRAD/
stepwise UNIV,ECL,MATH,ENG,ECO,STAT/
dependent=TCT/enter FIRQ, GRAD/
```

APPENDIX B

APL PROGRAM FOR QUADRANT ANALYSIS

```
p x park Y; INC; NPS; ch1; ch2; c1; c2; c3; c4; c5;
PRE; BASE; SAT; SEL
P←⍳0
INC←2.4
NPS←3
I←1
J←1
ch1←⍴x
ch2←⍴Y
L2:NPS←ch2⍴NPS
L1:INC←ch1⍴INC
c1←+/(INC≤X)∧(NPS≤Y)
C2←+/(INC>X)∧(NPS≤Y)
C3←+/(INC>X)∧(NPS>Y)
C4←+/(INC≤X)∧(NPS>Y)
C5←C1+C2+C3+C4
PRE←(C1+C3)÷C5
BASE←(C1+C2)÷C5
SAT←C1÷(C1+C4)
SEL←(C1+C4)÷C5
P P,c1,c2,c3,c4,PRE,BASE,SAT,SEL
I-I+1
INC-INC+0.1
→L1×⍳I≤10
 I←1
 INC←2.4
 J←J+1
 NPS←NPS+0.1
 →L2×⍳J<8
 P←70 8 ⍴P
```

```
p x park Y; INC; NPS; ch1; ch2; c1; c2; c3; c4; c5;
PRE; BASE; SAT; SEI
P← ⍳0
INC← 80
NPS← 3
I← 1
J← 1
ch1← ⍴X
ch2← ⍴Y
L2:NPS← ch2⍴NPS
L1:INC← ch1⍴INC
c1← +/(INC≤X)∧(NPS≤Y)
C2← +/(INC>X)∧(NPS≤Y)
C3← +/(INC>X)∧(NPS>Y)
C4← +/(INC≤X)∧(NPS>Y)
C5← C1+C2+C3+C4
PRE←(C1+C3)÷C5
BASE←(C1+C2)÷C5
SAT←C1÷(C1+C4)
SEI←(C1+C4)÷C5
P  P,c1,c2,c3,c4,PRE,BASE,SAT,SEL
I←I+1
INC←INC+1
→L1×⍳I≤12
 I←1
 INC←80
 J←J+1
 NPS←NPS+0.1
 →L2×⍳J<8
 P←96 8⍴P
```

APPENDIX C

DATA FOR THIS STUDY

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2.61	90	2.93	2.98	3.00	3.29	1.67	3.00	4.00	2.67	3.02
3.07	96	3.94	3.65	2.00	2.67	3.50	3.50	2.00	2.00	3.56
2.42	88	2.90	3.21	2.00	3.00	3.00	3.00	2.75	3.33	3.25
3.19	100	3.82	3.47	1.00	4.00	4.00	3.00	4.00	3.67	3.39
2.88	80	3.18	3.19	2.00	2.50	4.00	4.00	2.67	4.00	3.19
3.05	97	3.53	3.46	3.00	3.57	3.00	4.00	3.67	3.00	3.46
2.92	86	3.33	3.49	3.00	2.50	3.00	2.00	2.50	3.00	3.48
2.79	92	3.67	3.51	3.50	3.00	3.00	3.00	3.50	3.00	3.44
3.00	81	3.33	3.37	3.00	2.75	4.00	3.00	4.00	4.00	3.35
2.71	81	3.35	3.34	3.00	3.00	2.33	3.00	3.00	3.00	3.35
2.65	80	3.00	3.29	2.00	3.00	3.00	2.50	2.75	3.67	3.33
2.50	83	3.15	3.12	3.00	2.67	2.50	3.00	4.00	4.00	3.09
2.45	83	3.00	3.12	2.00	2.30	2.33	4.00	3.33	4.00	3.15
3.22	81	3.28	3.53	3.00	3.81	4.00	4.00	3.70	3.33	3.62
2.74	95	3.37	3.31	3.00	3.81	3.00	2.00	3.00	2.50	3.32
x	83	3.27	3.34	x	x	x	x	x	x	3.27
x	86	3.10	3.18	x	x	x	x	x	x	3.20
x	94	3.68	3.56	x	x	x	x	x	x	3.52
x	92	3.13	3.23	x	x	x	x	x	x	3.25
3.21	92	3.69	x	3.00	3.30	4.00	3.00	3.30	4.00	x
3.00	93	3.64	x	3.00	3.30	3.00	3.00	3.50	3.67	x
2.95	91	3.14	x	3.00	3.00	3.00	2.00	3.17	3.00	x
3.20	88	3.51	x	3.00	3.00	4.00	3.00	4.00	3.67	x
2.82	81	3.45	x	4.00	2.10	3.75	2.00	3.17	4.00	x
2.68	83	3.06	x	2.00	2.75	3.20	2.00	4.00	4.00	x
21	25	25	19	21	21	21	21	21	21	19

(1) University grade
(2) Score of English comprehension level test
(3) NPS first quarter grade
(4) NPS total average grade
(5) University statistics grade
(6) University English grade
(7) University mathematics grade
(8) University economics grade
(9) High school English grade
(10) High school mathematics grade
(11) NPS graduate course grade

LIST OF REFERENCES

1. Wolfe, Malcolm E. and others, Naval Leadership, U. S. Naval Institute (Annapolis, Maryland), Second Edition, p. V, 1959.

2. Brown, J. Douglas, The Human Nature of Organizations, American Management Associations, Vol. 13, No. 1 PP. 17 - 31, 1973.

3. Bernette, W.e., Manager Selection, Education and Training, McGraw-Hill, Inc., PP. 50 -53, 1959.

4. Organizational Effectiveness Research Programs Office of Naval Research Report No.10, Predictors of Business Manager Success at Ten Years out of MBA, by Harrell, T.W. and Harrell, M.S., May 1976.

5. Cascio, Wayne F., Applied Psychology in Personnel Management, Reston Publishing Company, Inc. Second Edition, pp. 210 - 260, 1982.

6. Heneman, Herbert G. and others, Personnel/Human Resource Management, Richard D Irwin, Inc., pp. 248 - 310, 1983.

7. French, Wendell, the Personnel Management Process, Human Resource Administration, Third Edition, pp. 266 - 303,1974.

8. Arvey, Richard D., Fairness in Selecting Employees, Addison-Wesley Publishing Company, PP. 58 - 65, 1979.

9. Dunnette, Marvin D., Personnel Selection and Placement, Brook/Cole Publishing Company, pp. 168 - 180, 1966.

10. Sands, Willialm A., "A Method for Evaluating Alternative Recruiting - Selection Strategies: The CAPER Model," Journal of Applied Psychology, Volume 57, Number 3, pp. 222 - 226, June 1973.

11. Wiggins, J.S., Personality and Prediction: Principles of Personality Assessment, Addison - Wesley Publishing Company, Inc., pp. 262 - 270, 1973.

12. Fenlason, Anne F., Essentials in Interviewing, Harper & Brothers, Revised Edition, pp. 128 - 134, 1962.

13. Sorner, B.C., F.E. Smith, J.D. Finnerty, "Factors Influencing Management Student Performance in

Mathematics Course," Naval Postgraduate School, pp. 2 - 5, January 1975.

14. Taylor, H.C. and J.T. Russell, "The Relationship of Validity Coefficients to The Practical Effectiveness of Tests in Selection: Discussion and Tables," Journal of Applied Psychology, Vol. 23, pp. 565 - 578, 1939.

15. Appley, L.A., Formula for Success- A Core Concept of Management, AMACOM, PP. 8 - 15, 1974.

16. McClelland, David C. and David H. Burnham, "Power is The Great Motivator," Harvard Business Review, pp. 100 - 110, March-April 1976.

17. Campbell, J.P., Dunnette, M.D., Lawler, E.E. and Weick, K.E., Managerial Behavior, Performance and Effectiveness, McGraw-Hill, Inc. PP. 5 - 8, 1970.

18. Lippitt, Gordon L., Organization Renewal : Achieving Viability in a Changing World, Meredith Corporation, PP. 8 - 10, 1969.

19. Katz, Robert L., "Skills of an Effective Administrator," Harvard Business Review, pp. 90 - 94, September-October 1974.

20. Lipsett, Laurence, Frank P. Rodgers, Harold M. Kentner, Personnel Selection and Recruitment, Rochester Institute of Technology, PP. 141 - 151, 1964.

21. Donovan, J.J., Recruitment and Selection in the Public Service, Public Personnel Association, PP. 71 - 83, 1968.

22. McMurry, Robert N., "Validating The Patterned Interview," Personnel, Vol. 23, No. 4, pp. 265 - 267, January 1947.

23. Fear, R. A., Jordan, B., Employee Evaluation Manual for Interviewers, New York, Psychological Corp., 1964.

24. Jaffee, Cagbot L., Effective Management Selection : The Analysis of Behavior by Simulation Techniques, Addision - Wesley Publishing Company, P. 20 - 26, 1971.

25. Levinson, H., "Thinking Ahead," Harvard Business Review, pp. 30 - 44, July-August 1976.

BIBLIOGRAPHY

Appley, Lawrence A., *Values in management*, American Management Association, Inc., 1969.

Argyris, Chris, *Integrating the Individual and the Organization*, John Wiley &Sons, Inc., 1964.

Cronbach, Lee J., Gleser, Goldine C., *Psychological Tests and Personnel Decisions*, University of Illinois Press, Urbana, 1957.

Dooher, M. Joseph, *Selection of Management Personnel*, American Management Association, Inc., Volume 1, 1957.

Harrell, Thomas W., *Managers' Performance and Personality*, South - Western Publishing Co, 1961.

Kahn, Robert L., Charles F. Cannel, *The Dynamics of Interviewing*, New York John Wiley & Sons, Inc., January 1958.

Korman, A.K., *The Prediction of Managerial Performance*, Personnel Psychology, vol. 21, 1968.

Meredith, William M., *Basic Mathematical and Statistical Tables for Psychology and Education* McGRAW-Hill Book Company, 1967.

Richard, Stephen A., Barbara Snell Dobrenwend, David Klein, *Interviewing Its Forms and Functions*, Basic Books, Inc., 1965.

Vernon, Philip E., *Personality Assessment : a Critical Survey*, 1964.

INITIAL DISTRIBUTION LIST

		No. Copies
1.	Defense Technical Information Center Cameron Station Alexandria, Virginia 22314	2
2.	Library, Code 0142 Naval Postgraduate School Monterey, California 93943	2
3.	Department Chairman, Code 54 Dept. of Administrative Sciences Naval Postgraduate School Monterey, California 93943	1
4.	Professor T. G. Swenson, Code 54 Cf Dept. of Administrative Sciences Naval Postgraduate School Monterey, California 93943	2
5.	Professor R. A. Weitzman, Code 54 Js Dept. of Operations Research Naval Postgraduate School Monterey, California 93943	2
6.	Park, Durk Kwan 392 - 6, Kong Reung 1 Dong, Do Bong-Ko, Seoul, Korea	5
7.	Personnel Management Office Army Headquarters Seoul, Korea 140-01	2
8.	Office of the Defense Attache Embassay of the Republic of Korea 2320 Massachusetts Avenue, Northwest Washington, D.C. 20008	1
9.	Library Officer Korea Military Academy Seoul, Korea 130-09	2

13537 5

210531

Thesis
P15742 Park
c.1 Analysis of selection
process for management
education: Korean
military case

21 JUL 88 33590

210531

Thesis
P15742 Park
c.1 Analysis of selection
process for management
education: Korean
military case

thesP15742
Analysis of selection process for manage
3 2768 001 97201 1
DUDLEY KNOX LIBRARY